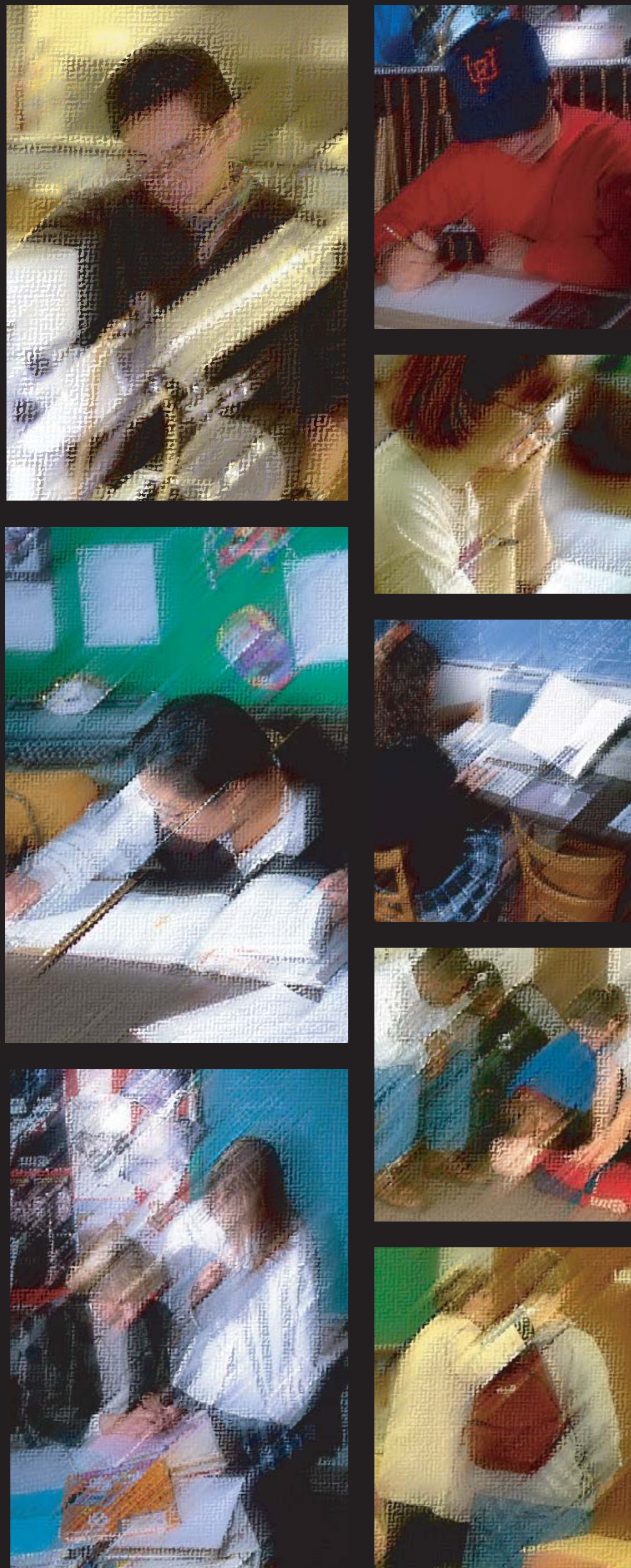

School Achievement Indicators Program

SAIP

Mathematics III
2001

Council of Ministers of Education, Canada
Conseil des ministres de l'Éducation (Canada)

Report on Mathematics Assessment III

SAIP

School Achievement Indicators Program

2001

Council of Ministers of Education, Canada

The Council of Ministers of Education, Canada (CMEC), created in 1967, provides the ministers responsible for education in the provinces and territories with a mechanism for consultation on educational matters of mutual interest and concern, facilitates cooperation among the provinces and territories on a broad range of activities at the elementary, secondary, and postsecondary levels. CMEC Secretariat offices are located in Toronto.

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INTRODUCTION

A CONTEXT FOR THIS REPORT

This document is the report to the public on the results of the pan-Canadian assessment of mathematics achievement for 13-year-old and 16-year-old students, administered in the spring of 2001 by the Council of Ministers of Education, Canada (CMEC), as a part of the ongoing School Achievement Indicators Program (SAIP).

SAIP is a cyclical program of pan-Canadian assessments of student achievement in mathematics, reading and writing, and science that has been conducted by CMEC since 1993.

The SAIP Mathematics III Assessment (2001) is the third in the series of mathematics assessments, and the results are related to those of similar assessments conducted in 1993 and 1997.

In addition to the results for Canada and for the individual jurisdictions, this public report outlines the curriculum framework and criteria upon which the test is based and describes briefly the development and modification of the test instruments. A preliminary discussion of the data is included, as are the results of a national expectations-setting process, in which actual student results are compared to expectations set by a pan-Canadian panel.

A more detailed statistical analysis of data and a more detailed discussion of methodology will be found in the technical report for this assessment, which will be released by CMEC later this year.

An important aspect of this assessment is the collection of contextual data on the opportunities students have had to learn mathematics and on their attitudes toward mathematics, as well as other information on their interests and activities. Additional contextual information was gathered from school principals and mathematics teachers. A sampling of this information is included in this report, while more information and a detailed discussion will be found in the report *Mathematics Learning: The Canadian Context, 2001,* to be released shortly.

Box 1

SAIP Reports

Three reports will be released for this assessment.

- This public report, intended to give a summary of results and how they were obtained.
- An additional public report, *Mathematics Learning: The Canadian Context, 2001*, with detailed analysis of the data from student, teacher, and school questionnaires to be released shortly.
- A technical report, which usually follows the public report by several months and contains a more detailed description of development and administration, as well as a more complete and detailed data set. This report is intended for researchers and education officials.

Both public reports will be available on the CMEC Web site at **www.cmec.ca**.

SCHOOL ACHIEVEMENT INDICATORS PROGRAM (SAIP)

Background

Ministers of education have long recognized that achievement in school subjects is generally considered to be one worthwhile indicator of the performance of an education system. Ministries[1] of education therefore have participated in a variety of studies of student achievement over the past two decades. At the international level, through CMEC, as well as individually, Canadian provinces and territories have taken part in various achievement studies such as those of the Organisation for Economic Co-operation and Development (OECD), the International Assessment of Educational Progress

[1] In this report, "ministry" means "department" as well, and "jurisdiction" means both "province" and "territory."

Table 1	
Overview of SAIP Mathematics III (2001)	
Participating jurisdictions	Canada, including all 10 provinces and 3 territories
Populations sampled	13-year-old students and 16-year-old students, except Quebec 16-year-old students (Note that both populations were administered the same test questions.)
Number of participating students	41,000 students • 24,000 13-year-old students • 17,000 16-year-old students
Languages in which the test was developed and administered	Both official languages • 33,000 anglophone students • 8,000 francophone students*
Framework	• Mathematics content • Problem solving
Assessment administration	• Half of students completed the problem solving component (2.5 h). • Half of students completed the mathematics content component (2.5 h). • All students completed a student questionnaire (30 m). • The teacher and principal each completed a separate questionnaire.
Results	• Reported for Canada • Reported for jurisdictions • Pan-Canadian expectations set by broadly representative panel of Canadians
Scoring	• Five levels of achievement
Reports	• Public report (this report) • *Mathematics Learning: The Canadian Context, 2001* (to be released later) • Technical report (to be released later)

* Quebec 16-year-olds did not participate in this assessment. Provinces with significant populations in both languages reported results for both language groups.

(IAEP), and the International Association for the Evaluation of Educational Achievement (IEA). In addition, in most jurisdictions, ministries undertake measures at the jurisdictional level to assess students at different stages of their schooling.

To study and report on student achievement in a Canadian context, CMEC initiated the School Achievement Indicators Program in 1989. In December 1991, in a memorandum of understanding, the ministers agreed to assess the achievement of 13- and 16-year-olds in reading, writing, and mathematics. In September 1993, the ministers further agreed to include the assessment of science. The information collected through the SAIP assessments would be used by each jurisdiction to set educational priorities and plan program improvements.

Table 2

SAIP Assessment Schedules

Mathematics	*Reading and Writing*	*Science*
1993	1994	1996
1997	1998	1999
2001	2002 (Writing)	2004

Copies of reports for assessments administered since 1996 can be found in both official languages through the CMEC Web site at ***www.cmec.ca*** *by following the link to SAIP. For earlier reports, contact CMEC directly at the address found on the inside cover of this report.*

It was decided to administer the assessments in the spring of each year as shown in Table 2 above.

The first two cycles of assessments took place as scheduled, and a report was published for each assessment (see Table 2). Because this is the third mathematics assessment, two questions are asked. In addition to the initial question: "How well have Canadian 13- and 16-year-old students learned mathematics in 2001?", there is also the question: "Has the achievement of Canadian 13- and 16-year-old students in mathematics changed since the first two assessments?"

FEATURES OF SAIP ASSESSMENTS

Curriculum Frameworks and Criteria

School curricula differ from one part of the country to another, so comparing test data resulting from these diverse curricula is a complex and delicate task. Young Canadians in different jurisdictions, however, do learn many similar skills in reading and writing, mathematics, and science. Throughout the history of SAIP assessments, development teams composed of representatives from various jurisdictions have worked with CMEC staff to consult with all jurisdictions to establish a common framework and set of criteria for each subject area. These were intended to be representative of the commonly accepted knowledge and skills that students should acquire during their elementary and secondary education.

Within each subject area, separate strands (or domains) were developed that provided organizers for the curriculum. Then sets of criteria (and separate assessment tools) were developed to assess both the knowledge and the skill components within the strands of the curriculum. In mathematics, both mathematics content and problem solving assessments were developed; in science, both written and practical task assessments were developed; and both reading and writing assessments were developed to assess language skills.

Assessments Over Time

Another important factor to be considered is the impact of changes in curriculum and in teaching practice over time, as a result of both developments in educational research and changing public understandings of the role of education in society. SAIP assessments in all subject areas therefore have been designed to retain sufficient items from one administration to the next to allow longitudinal comparisons of student achievement, while making enough modifications to reflect changes in educational policies and practices.

Five Levels of Achievement

Achievement criteria[2] were therefore described on a five-level scale, representing a continuum of knowledge and skills acquired by students over the span of their elementary and secondary experience. Level 1 criteria were representative of knowledge and skills typically acquired during early elementary education, while level 5 criteria were typical of those acquired by the most capable students at the end of their secondary school program.

It is important to realize that the same assessment instruments are administered to both age groups (13-year-olds and 16-year-olds) to study the change in student knowledge and skills due to the additional years of instruction. Development teams therefore designed assessments in which most 13-year-olds would be expected to achieve level 2 and most 16-year-olds might achieve level 3. For 16-year-olds in particular, the number of specialized courses completed in the subject area being tested would influence greatly the level of achievement expected. In spite of these potential differences in course selection by individual students, SAIP assessments should still help to determine whether students attain similar levels of performance at about the same age.

[2] See *SAIP Mathematics Assessment Framework and Criteria*, below.

A Program Assessment, Not a Student Assessment

In the SAIP assessments, the achievement of individual students is not identified, and no attempt is made to relate an individual's achievement to that of other students. The SAIP assessments are intended to be used as one tool to help in measuring how well the education system of each jurisdiction is doing in teaching the assessed subjects. They do not replace individual student assessments, which are the responsibility of teachers, school boards and districts, and ministries of education. Similarly, no attempt is made to compare schools or school districts. The results are reported at the Canadian and jurisdictional levels only.

Harmonization of English and French Assessment Materials

From the outset, the content instruments used in all SAIP assessments are developed by anglophone and francophone educators working together for the purpose of minimizing any possible linguistic bias. Whether they wrote in French or in English, the students were asked to respond to the same questions and to solve the same problems. A linguistic analysis of each question and problem was also conducted to make sure French and English items functioned in the same manner. For the marking sessions, francophone and anglophone coders were jointly trained and did the marking together in teams working in the same rooms. Consequently, the statistical results presented for each language group in this report can be compared with reasonable confidence.

Funding for SAIP Assessments

Funding for the SAIP assessments is provided jointly by CMEC, ministries of education, and Human Resources Development Canada.

MATHEMATICS EDUCATION IN CANADA

As acknowledged earlier, mathematics curricula differ from one part of the country to another; however, there is a high degree of congruence in many areas of study. There is a strong network of Canadian mathematics educators who work closely with ministries of education in developing curriculum policy (see Box 2). Many Canadian jurisdictions, both individually and in cooperative groups, have developed provincial curricula based upon widely recognized standards for the teaching, learning, and assessment of mathematics (see Box 3). In the development of the *SAIP Mathematics Assessment Framework and Criteria*, and of the assessment instruments themselves, experts from across Canada were closely consulted to ensure that the assessment would provide an accurate and appropriate picture of student achievement in mathematics across the country.

In addition to the many cooperative and individual curriculum renewal initiatives that have taken place in Canada over the past decade, curriculum development across Canada and in many other countries has been influenced greatly by the standards developed by the National Council of Teachers of Mathematics (NCTM) in the United

Box 2

Mathematics Educators

There is a strong and active network of mathematics educators across Canada and North America. A useful directory of organizations with associated links may be found at **http://mathcentral.uregina.ca/BB/**.

Box 3

Mathematics Curriculum Development

Some important curriculum resources:

- The *Western Canadian Protocol Common Curriculum Framework for Canada Mathematics* (1995)
- *Foundation for the Atlantic Canada Mathematics Curriculum*, (nd), and individual provincial curricula
- National Council of Teachers of Mathematics (NCTM). *Principles and Standards for School Mathematics (2000)*

States. In addition, the American Association for the Advancement of Science (AAAS) as a result of their *Project 2061* has been influential in mathematics curriculum development.

Mathematics Curricula in Canada

Common to all mathematics curricula are a number of general principles:

- The importance of providing an accessible mathematics education for all students
- The concept that students learn best when they are actively involved in the process and can relate their learning to their own experiences
- The importance of teaching and learning problem-solving skills as a central part of the curriculum
- The importance of fostering positive attitudes toward learning about and using mathematics concepts and skills

IMPORTANT ASSUMPTIONS AND LIMITATIONS FOR THIS ASSESSMENT

The primary assumption for this assessment is that the five levels of performance represent the potential progression of all students in the sample. However, not all students continue in formal mathematics programs throughout their secondary school career. Since the sample included 13-year-olds and 16-year-olds, some participants, particularly in the older population, may not have taken mathematics courses for two years or more. The sequence of mathematics courses is also not the same for all students in all jurisdictions. The number of required courses, their degree of specialization in the traditional areas of mathematics, and the stress on particular topics vary from jurisdiction to jurisdiction. For example, some jurisdictions emphasize algebra and functions, while others devote more time to measurement and geometry. In addition, concepts and mathematical procedures are introduced in different grades in the various jurisdictions. For these reasons, the *SAIP Mathematics Assessment Framework and Criteria* was originally drafted to reflect the breadth of what students should know and be able to do in the four areas of the assessment framework.

Although the content of the SAIP Mathematics III Assessment was consistent with that of mathematics programs across Canada, there are some limitations that should be noted. The assessment focuses on knowledge and skills that can be measured by a paper-and-pencil test. The following dimensions of mathematics, which are important elements of some programs, were not assessed: the ability to work with manipulatives to solve problems, group problem-solving skills, and the exploration of complex mathematical issues. These dimensions of mathematics programs often represent important outcomes and also reflect critical processes in the teaching of mathematics. These complex skills and processes are more appropriately measured through a variety of techniques such as interviews, portfolios, and performance-based assessments using manipulatives.

SAIP MATHEMATICS ASSESSMENT FRAMEWORK AND CRITERIA

The framework and criteria for the SAIP Mathematics III Assessment reflect the principles of mathematics education described above.

The framework is defined by a series of *strands*, or curriculum organizers.

The strands chosen to measure students' skills in *mathematics content* are designed to evaluate achievement levels attained on

- Numbers and operations
- Algebra and functions
- Measurement and geometry
- Data management and statistics

The strands chosen to measure students' skills in *problem solving* are designed to evaluate levels of achievement attained on

- A range of problems and solutions
- The use of numbers and symbols
- The ability to reason and to construct proofs
- Providing information and making inferences from databases
- Pursuing evaluation strategies
- Demonstrating communication skills

A detailed description of the assessment domains and the associated criteria for each of the five levels may be found on the CMEC Web site at **www.cmec.ca**.

Summary of Criteria for Mathematics Content

(With exemplars drawn from actual student responses)

Level One

- Adds, subtracts, and multiplies, using a limited range of natural numbers
- Uses concrete materials and diagrams to represent simple relations
- Determines linear dimensions of recognizable simple plane figures
- Reads information from very simple tables

7. The points at a sporting competition are awarded as follows:

First Place:	100 points
Second Place:	10 points
Third Place:	1 points

Juan finished first, second, or third in eight events. His total was 251 points.

How many first place results did Juan win?

*A. 2 B. 8 C. 15 D. 111

19. Akiko has to travel a total of 802 km from Quebec City to Toronto for a business meeting. When she reaches Montreal, Akiko has travelled 256 km.

What further distance must Akiko travel in order to get to Toronto?

Answer = 546 km

Level Two

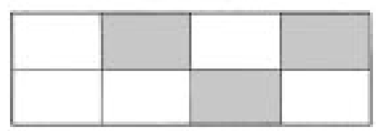
- Uses the four basic operations with natural numbers
- Uses patterns and classifications in real-life situations and plots points on a grid
- Calculates dimensions and areas of plane figures, classifies solid forms, and uses single geometric transformations
- Extracts and represents data using tables and diagrams

13. James wants to run the perimeter of a playing field, the dimensions of which are marked in centimetres and metres.

What distance will James cover by running once around this field?

A. 280 cm   * B. 280 m   C. 18 100 cm   D. 18 100 m

17. Parts of the figure below are shaded.



What fraction of the figure is represented by the shaded parts?

Answer = 3/8

Level Three

- Uses the four basic operations with integers
- Uses monomial algebraic expressions and plots points on a Cartesian grid
- Uses length, angle measure, and area involving various plane geometric figures and repetitions of the same geometric transformation
- Uses information from various sources and calculates arithmetic mean and simple probabilities

4. The weekly salary for a part-time job selling shoes in a shoe store is calculated using the formula

$$\text{Salary} = 5h + \frac{v}{15}$$

where h represents the number of hours worked and v represents the dollar value of the shoes sold in a particular week. A salesperson worked 18 hours and sold $885 worth of shoes that week.

What was that week's salary for this salesperson?

A. $65.00 B. $90.00 * C. $149.00 D. $296.20

7. Francis decides to calculate his net worth to see if he can buy rollerblades that cost $89.95, including tax. Francis has:

- 12 dollars and 3 quarters in his coat
- $25.75 in his wallet
- a cheque for $20 from babysitting
- a debt of $3.25 that he owes to his brother

After paying his debt, how much more money does Francis need to buy the rollerblades?

A. $28.20 * B. $34.70 C. $55.25 D. $61.75

Level Four

- Uses the four basic operations with the full range of rational numbers
- Uses and graphs polynomial algebraic expressions and simple functions
- Uses the characteristics of solid forms, congruence and similarity in polygons, and compositions of plane transformations
- Organizes data, uses measures of central tendency, and calculates the probability of a single event

2. You are asked to find the numerical value of the following expression:

$$\frac{2x^4z + 4x^3y^2z}{4z}$$

where $x = -2$, $y = \frac{1}{2}$ and $z = -1$

What is the numerical value of this expression?

A. -4 * B. 6 C. 16 D. 28

16. The Drake Auditorium has seating for 2000 people. The tickets for a concert are \$11.50 for adults and \$6.25 for students. All seats in the auditorium are sold for the concert. Three-quarters of the tickets are sold to students and the remaining tickets are sold to adults.

How much money is collected from the sale of tickets for this concert?

Answer = \$15 125

Level Five

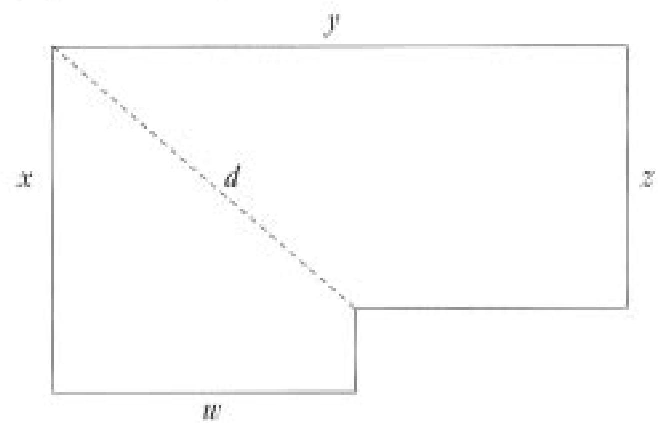
- Uses the four basic operations with the full range of real numbers
- Uses and graphs algebraic expressions with two variables and various functions
- Uses the properties of circles and right-angle triangles
- Calculates statistical information and the probability of combined events

10. A drafting student must construct a symbol. The symbol consists of a circle of radius 30 cm and an inscribed equilateral triangle. A metallic wire is used to outline the perimeter of the triangle.

To the nearest centimetre, what is the length of metallic wire needed?

A. 90 cm * B. 156 cm C. 180 cm D. 188 cm

8. The following diagram is a house plan. All corners are square.



What is the length of a diagonal *d* in terms of variables given in the diagram?

A. $d = \sqrt{x^2 + y^2}$ * B. $d = \sqrt{w^2 + z^2}$ C. $d = \sqrt{x^2 + w^2}$ D. $d = \sqrt{y^2 + z^2}$

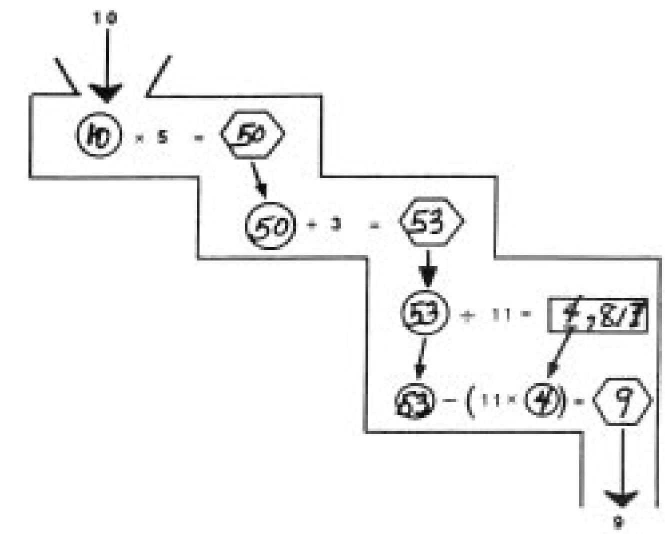
Summary of Criteria for Problem Solving

(With exemplars drawn from actual student responses)

Level One

- Finds single solutions to one-step problems using obvious algorithms and a limited range of whole numbers
- Uses one case to establish a proof

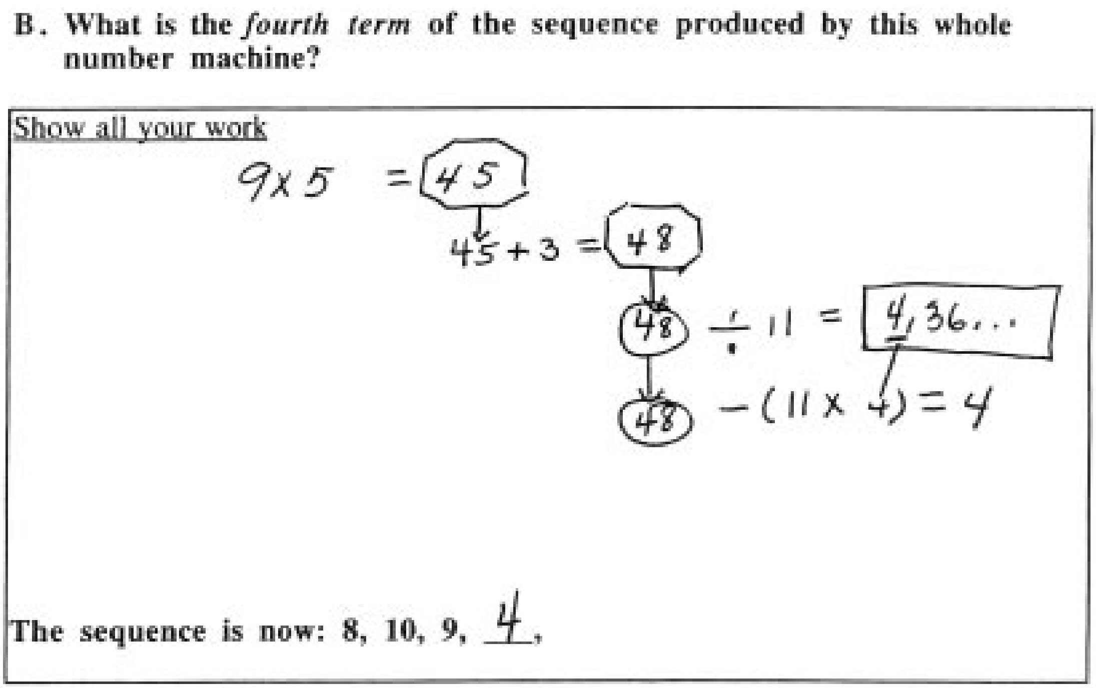
A. A sequence of numbers starting with 8 is generated using a whole number machine. Fill in the blanks to show the effect of the whole number machine on the second term of *10* to produce the *third term*, which is *9*.



The sequence is now: 8, 10, 9, ...

Level Two

- Makes a choice of algorithms to find a solution to
  a) multi-step problems, using a limited range of whole numbers or
  b) one-step problems, using rational numbers
- Uses more than one particular case to establish a proof
- Uses common vocabulary to present solutions


B. What is the *fourth term* of the sequence produced by this whole number machine?

Show all your work

9 x 5 = 45

45 + 3 = 48

48 ÷ 11 = 4,36...

48 − (11 x 4) = 4

The sequence is now: 8, 10, 9, 4,

Level Three

- Chooses from two algorithms to find a solution to multi-step problems using a limited range of rational numbers
- Uses necessary and sufficient cases to establish proof
- Uses mathematical vocabulary, imprecisely, to present solutions

C. What are all the *different* numbers that this number machine can produce?

Show all your work

$1 \times 5 = 5$

$5 + 3 = 8$

$8 \div \ = 0,72$

$8 - (11 \cdot 0) = 8$

$8, 10, 9, 4, 1$

$4 \times 5 = 20$

$20 + 3 = 23$

$23 \div 11 = 2,0\overline{9}$

$23 - (11 \times 2) = 1$

rep: 5

The sequence is now: 8, 10 9, 4, 1, 8, 10, 9, ...

Level Four

- Adapts one or more algorithms to find solutions to multi-step problems, using the full range of rational numbers
- Constructs structured proofs that may lack some details
- Uses mathematical and common vocabulary correctly, but solutions may lack clarity for the external reader

D. Explain why the *403rd* term, the *898th* term, and the *2003rd* term have the same value.

Show all your work

because terms repeat after five terms

403 - 3 = 400 is divisible by 5

898 - 3 = 895 is divisible by 5

2003 - 3 = 2000 is divisible by 5

This is the same term

the term is 9

Level Five

- Creates original algorithms to find solutions to multi-step problems, using the full range of real numbers
- Constructs structured proofs that provide full justification of each step
- Uses mathematical and common vocabulary correctly, and provides clear and precise solutions

E. Find a rule which allows you to determine *any term* of the sequence produced by the whole number machine.

Show all your work

x = term

x - y = number divisible by 5

if y = 1, the term is 8
y = 2, the term is 10
y = 3, the term is 9
y = 4, the term is 4
y = 0, the term is 1.

The 1993 Assessment

The development of the first SAIP Mathematics Assessment (1993) began in 1991 and was led by a consortium of Alberta, Quebec, and Ontario representatives who worked in cooperation with representatives of other ministries of education. These specialists developed mathematics material that would describe and assess the achievement of Canadian 13- and 16-year-olds. Criteria were developed for five performance levels, and two types of instruments were developed, the first for mathematics content instruments, and the second for problem solving instruments. The instruments were extensively field-tested, and comments from teachers and students, as well as detailed statistical analyses, were used in the process of selecting the items that would be included in the final test booklets.

The 1997 Assessment

The SAIP Mathematics II Assessment (1997) materials were essentially those developed for the 1993 assessment. The consortium responsible for the Mathematics II Assessment included representatives from British Columbia, Ontario, Quebec, and New Brunswick (French). Its task was to examine and update the assessment materials and, where necessary, take into account the data and comments from the 1993 administration, while making sure the modified materials would measure the same concepts and skills in the same manner as in 1993.

For mathematics content, criteria remained the same but, following an analysis of the 1993 data, four multiple-choice items were replaced and about 20 other items had very minor changes, mostly aiming at clearer language. Although the items were essentially the same as those used in 1993, the test booklets were packaged in a different manner: the background questionnaire, placement test, and 125 questions were all included in the same booklet. Following these modifications, all the instruments were field-tested in the fall of 1996.

The 2001 Assessment

In preparation for this assessment, a consortium of representatives from Saskatchewan, Ontario, and Newfoundland and Labrador were asked to take a fresh look at the framework and criteria, the assessment instruments, and the administration process, with a view to bringing the SAIP Mathematics III Assessment more in line with current research, developing curriculum policy, and teaching practice.

With the full involvement of, and consultation with, officials in all jurisdictions and with CMEC staff and other assessment experts, the 2001 consortium team made several changes to a number of elements of the assessment. Small changes in the distribution of question types among levels and strands were made to ensure an equal distribution of items. Accommodations were also made to increase the number of questions related to data management and statistics, reflecting current curriculum trends. All of these changes were thoroughly reviewed and tested in both pilot studies and a full-scale field trial.

Framework and Criteria

While the framework (i.e., the strands) remained unchanged, adjustments were made to the criteria that describe levels of achievement within each strand to allow more consistent and accurate assigning of levels to student work. For example, more criteria were added to the data management and statistics strand for this purpose.

Anchor Questions

The mathematics content assessment consists of 125 questions. A certain number of these, known as "anchor questions," have remained unchanged through all three assessments, to permit accurate comparison of student achievement from year to year. In each of the administrations of the assessment (1993, 1997, and 2001), some of the remaining questions were replaced or revised, reflecting the analysis of results that suggested a need for questions that would better indicate student achievement. In 2001, about 30 were thus replaced.

Problem Solving Assessment

Of the six problems presented to the students chosen for this portion of the assessment, four remained unchanged from earlier assessments, and two were replaced. Again, these new questions were rigorously tested through pilot studies and field trials.

A more detailed discussion of the development and verification of the Mathematics III Assessment instruments and administration procedures will be found in the technical report.

Comparability of the 1993, 1997, and 2001 Assessments

While these changes were all made to improve the ability of the SAIP Mathematics Assessment to measure the levels of student achievement, care was taken to try to ensure a valid answer to questions about changes in the mathematics achievement of Canadian 13- and 16-year-old students from 1993 through 1997 and into 2001. Since there were significant changes in the current assessment design, direct statistical comparison with 1993 results is problematic; however, care was taken to ensure that statistically sound comparisons could continue to be made between the 1997 and 2001 results. Not only were assessment design and administration considered, but also the scoring process was carefully designed and managed to ensure that such comparisons could be made.

Careful analysis of data from the 2001 scoring sessions has confirmed that there were few statistical differences in scoring criteria and practices between the 1997 assessment and that of 2001.

ADMINISTRATION OF THE MATHEMATICS III ASSESSMENT (2001)

In April and May 2001, the assessment was administered to a random sample of students drawn from all provinces and territories. Approximately 41,000 students made up the total sample — 24,000 thirteen-year-olds and 17,000 sixteen-year-olds. About 33,000 students completed the assessment in English, and 8,000 in French. In one jurisdiction (Quebec), only 13-year-old students participated.

Participating students were randomly assigned to one of two assessment components — half of the sample to a test of their understanding of mathematics content, the other half to a test of problem-solving skills.

Students assigned to the content assessment were first asked to complete a 15-question placement test, which was scored immediately. The results were then used to direct the individual student to the appropriate set of questions in the test booklet.

Students assigned to the problem solving assessment responded to a series of six problems, selected to assess knowledge and skills over a range of levels of difficulty.

SCORING THE 2001 ASSESSMENT

In all cases, scoring was done by teams of thoroughly trained scorers, who matched student responses with the criteria developed to measure student achievement. Rigorous statistical tests were carried out on a regular basis to ensure both the reliability of individual scorers and the consistency of applying scoring criteria. In addition, sophisticated management techniques have been developed over the history of SAIP assessments to ensure a reliable and efficient process of managing student booklets and the data resulting from the scoring process.

Mathematics Content

Most of the 22,000 mathematics content booklets were scored over a one-week period during June 2001, in Winnipeg, by a group of university students with backgrounds in mathematics and science, who were trained by the consortium members in assigning appropriate codes to student responses. A small team of experienced scorers in Newfoundland subsequently scored a few booklets that arrived after this first session.

Problem Solving

Since this aspect of the assessment required the judgment of experienced mathematics teachers, a team of about 90 teachers was gathered in Halifax during July 2001 to score the booklets. A team of 15 experienced scoring leaders participated in an intensive week-long preparation session. Members of the consortium team trained them on the scoring guide and gave them a large number of sample student responses for practice and subsequent discussion. This process ensured that this team of leaders was well prepared to form the resource team to lead the overall scoring process. During the following two weeks, the full scoring team then completed the scoring of about 19,000 student response booklets, each containing responses to six problems. To further enhance the reliability of the scoring, all scorers worked on the same problem at the same time, and frequent checks were made by scoring team leaders throughout the process.

PAN-CANADIAN EXPECTATIONS FOR PERFORMANCE IN MATHEMATICS

An important question that must be asked for any assessment is one of expectations. "What percentage of Canadian students should achieve at or above each of the five performance levels, as illustrated by the framework and criteria and by the questions asked?" The answer to this question must come not only from educators, but also from the broadest possible spectrum of Canadians.

To assist with the interpretation of SAIP assessments, CMEC regularly convenes pan-Canadian panels of educators and non-educators to examine the framework and criteria and to review the assessment instruments and scoring procedures. For the Mathematics III Assessment, panellists attended one of the three sessions held in Atlantic, Central, and Western Canada during October 2001. This anonymous panel consisted of teachers, students, parents, university academics and curriculum specialists, Aboriginal teacher trainers, business and industry leaders, community leaders, and members of national organizations with an interest in mathematics education. The panel featured representatives from across Canada.

Box 4

How well did Canadian students REALLY do?

To ensure that the design and the results of SAIP assessments are really representative of the expectations that Canadians have for their students and schools, a broadly based panel is gathered from across Canada of both educators and representatives from business and the general public.

In sessions held in three different locations in Canada, members examine all of the testing materials and share their expectations of how well Canadian students should perform.

Results of these sessions are then compared with the actual results and released in the public report.

The 100-member panel reviewed all assessment instruments, both mathematics content and problem solving, scoring procedures, and actual student results to determine the percentage of 13- and 16-year-old students who should achieve each of the five performance levels. Full and open disclosure was provided to panellists of any information pertinent to the assessment, including sampling of students and the varying opportunities that students across the country have in learning mathematics.

A collaborative process was used to define pan-Canadian expectations for student achievement in mathematics. Specifically, participants were asked to answer independently the question "What percentage of Canadian students should achieve at or above each of the five performance levels, as illustrated by the framework and criteria and by the questions asked?"

Panellists' answers to that question were collected to determine the desired Canadian student performance and to help interpret how students should do in comparison with actual results.

This report provides results on Canada as a whole, as well as those of individual jurisdictions. To facilitate understanding of the many graphs and charts that follow, this section begins with a short note on interpreting the results.

NOTES ON STATISTICAL INFORMATION

In this report, most performance-by-level charts are based on **cumulative results** and actually show percentages of students **at or above** each level. The implication here is that students performing, for example, at level 5 have also satisfied the criteria for levels 1, 2, 3, and 4.

Differences

In this report the terms "difference" or "different," used in the context of performance levels and percentages, refer to a difference that is not due to chance. In a technical sense, they refer to a **statistically significant differenc**e. A difference is statistically different when there is no overlap of confidence intervals between the two measurements.

Confidence Intervals

In this study, the percentages calculated by the researchers were based on samples of students and are only estimates of the actual achievement students would have demonstrated had all students in the population taken the assessment. Because an estimate based on a sample is rarely exact, it is common practice to provide a range of percentages within which the actual achievement level might fall. This range of percentage values is called a confidence interval and represents the high- and low-end points between which the actual achievement level should fall 95% of the time. In other words, one can be confident that the actual achievement level of all students would fall somewhere into the established range 19 times out of 20, if the assessment were repeated with different samples of the same student population.

Box 5

Statistical Comparisons

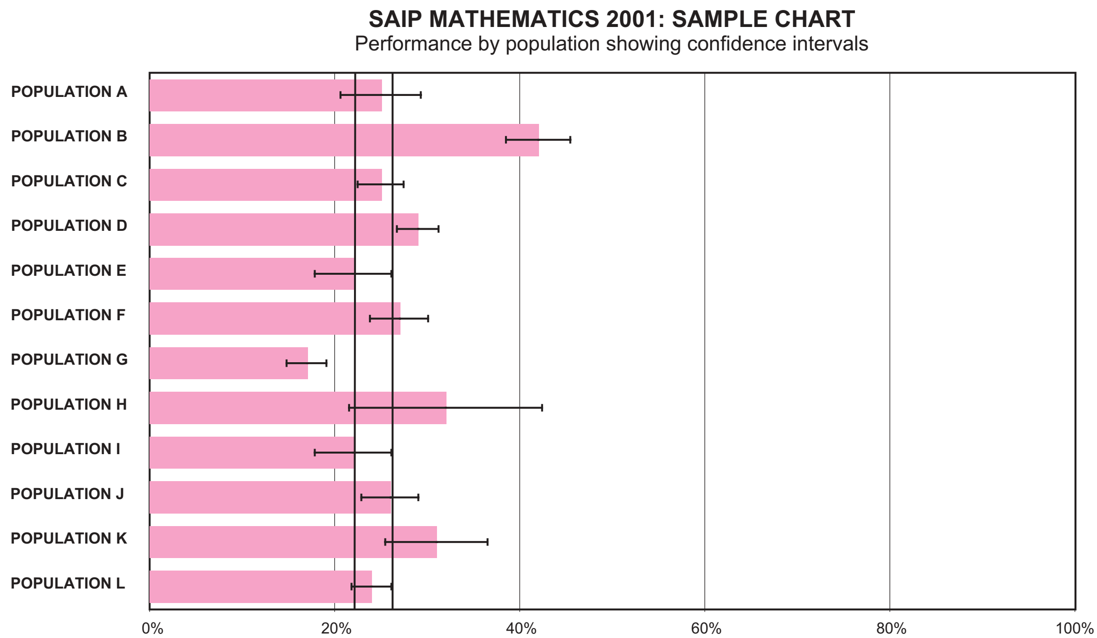
The performance of students in Canada (and within each jurisdiction) was compared by looking at the average scores for all students in each jurisdiction and at the distribution of these scores.

Because the available scores were based on samples of students from each jurisdiction, we cannot say with certainty that these scores are the same as those that would have been obtained had all 13-year-old and 16-year-old students been tested. We use a statistic called the *standard error* to express the degree of uncertainty in the scores for the sample compared with the population. Using the standard error, we can construct a confidence interval, which is a range of scores within which we can say, with a known probability (such as 95%), that the score for the full population is likely to fall. The 95% confidence interval used in this report represents a range of plus or minus about two standard errors around the average.

The following charts are intended as representations of numerical data, and as such cannot always be interpreted with the same degree of precision as the actual numbers. This is particularly true for small percentages and small confidence intervals. For more precise data, please refer to the numerical tables in the appendix to this report, and to the forthcoming technical report.

In the charts in this report, confidence intervals are represented by the following symbol: ├─┤. If the confidence intervals overlap, the differences are not statistically significant. It should be noted that the size of the confidence interval depends upon the size of the sample. In jurisdictions with a smaller sample, a large interval may indicate difficulties in estimating the actual achievement of the population and does not necessarily reflect on the competency of the students who were administered the assessment.

The following chart is provided to help readers interpret the confidence intervals used in this report. For example, there is no significant difference between population L and populations A, C, E, F, H, I, J, and K, but there are significant differences between population L and populations B, D, and G because their confidence intervals do not overlap.



Introduction

In this section of the report, results are presented for Canada as a whole. The following charts are included:

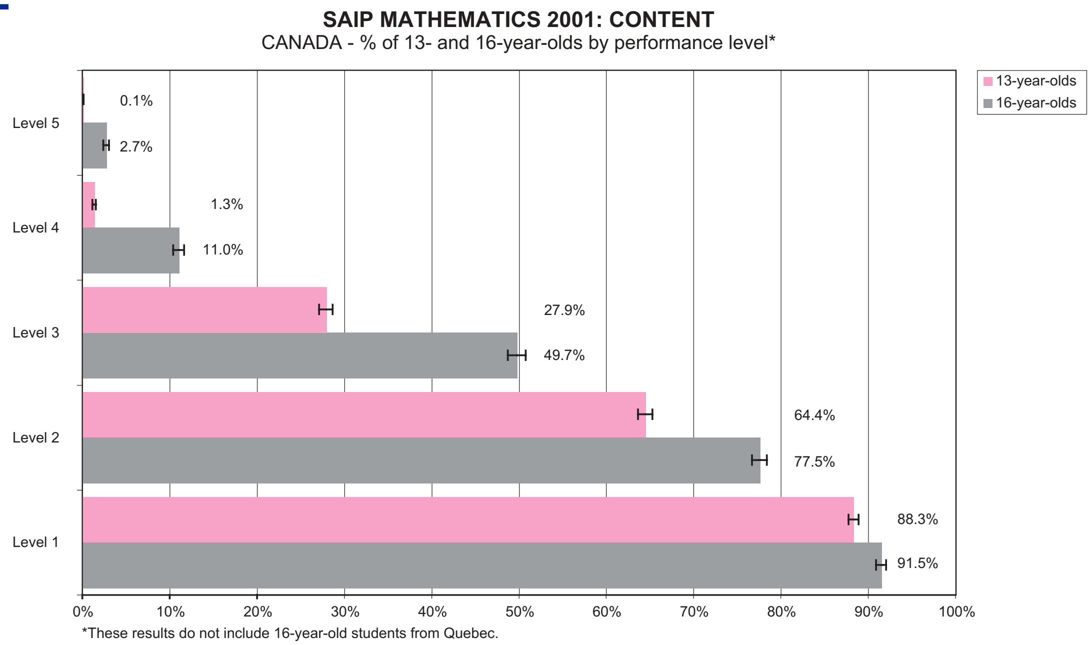
- Chart C1 – Mathematics Content by Age
- Chart C2 – Problem Solving by Age
- Charts C3 through C6 – Comparison of 1997 and 2001 Results
- Charts C7 through C10 – Achievement Differences by Gender
- Charts C11 through C14 – Achievement Differences by Language
- Charts C15 through C18 –Pan-Canadian Expectations

Overall Results

Since both groups were given the same assessment items, one would expect that there would be significant differences between the performances of 13-year-old and 16-year-old students at each of the five levels in both mathematics content and problem solving.

As the following charts (charts C1 and C2) indicate, the results for the 2001 assessment support this expectation. In addition, as one might expect, there are more older students at higher levels (4 and 5) and fewer at lower levels. While the overall results are not surprising with this data, what once would have been only an expectation can now be stated with some certainty.

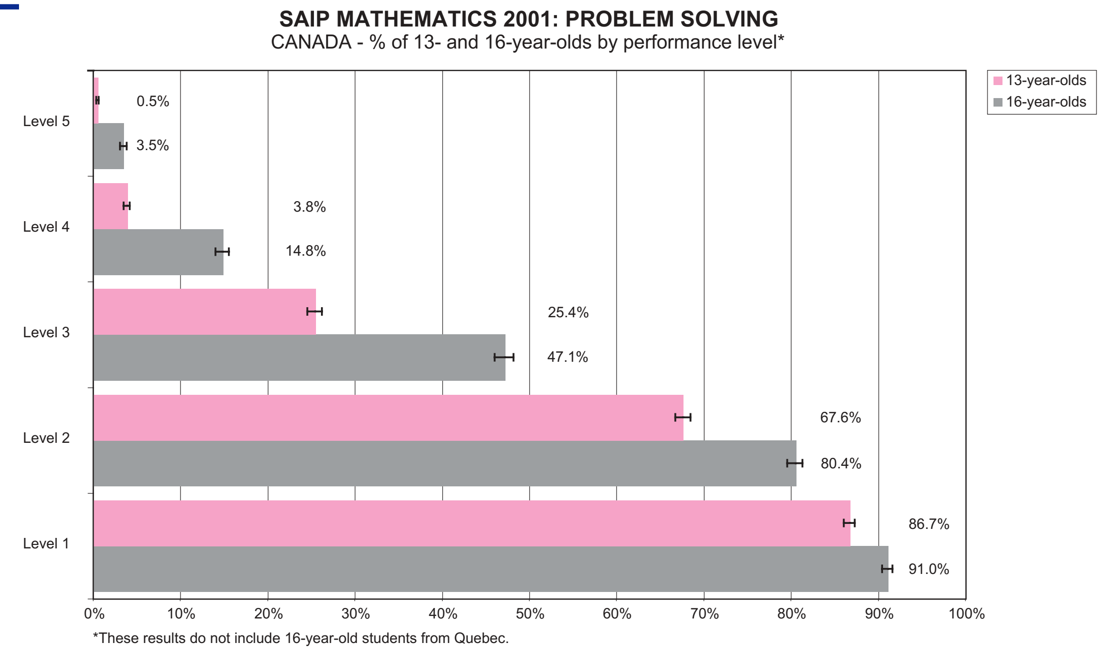
CHART C1



In the content assessment, nearly two-thirds of the 13-year-olds achieved level 2, where they demonstrated competence in such areas as using the four basic operations with natural numbers, using patterns and classifications in real-life situations, and extracting and representing data using tables and diagrams.

Half of the 16-year-olds achieved level 3, where they demonstrated competence in such areas as using the four basic operations with integers; using monomial algebraic expressions and plotting points on a Cartesian grid; using length, angle measure, and area involving various plane geometric figures; and using information from various sources to calculate the arithmetic mean and simple probabilities.

CHART C2



In the problem solving assessment, more than two-thirds of 13-year-olds achieved level 2 where they demonstrated such abilities as making a choice of algorithms to find a solution to multi-step problems using a limited range of whole numbers or to one-step problems using rational numbers; using more than one particular case to establish a proof; and using common vocabulary to present solutions.

Nearly half of the 16-year-olds reached level 3 where they demonstrated such abilities as choosing from two algorithms to find a solution to multi-step problems using a limited range of rational numbers; using necessary and sufficient cases to establish proof; and using mathematical vocabulary, imprecisely, to present solutions.

Comparisons between the mathematics content and the problem solving component results should only be attempted with caution. While students may appear to have achieved higher or lower scores in problem solving than in mathematics content, this may not be significant since different criteria were used in the two assessments, and it is impossible to equate the degree of difficulty of the questions contained in each component.

ACHIEVEMENT DIFFERENCES 1993, 1997, AND 2001

While considerable effort was made to ensure statistical comparisons could be made among all three assessments, significant changes in scoring methods and assessment design since 1993 make such a comparison possible only between the 1997 and 2001 assessments. In 2001 there were some small changes made in the distribution of question types among levels and strands to ensure an equal distribution of items. Accommodations also had to be made to increase the number of questions related to data management and probability, reflecting current curriculum trends. Nevertheless, it was found to be statistically sound to make direct comparisons between the 1997 results and 2001 results.

Charts C3 through C6 summarize the changes in student performance in mathematics content and problem solving for both age groups.

One factor that must be kept in mind in making such comparisons for 16-year-old students is the absence of Quebec 16-year-olds in the 2001 assessment.

CHART C3

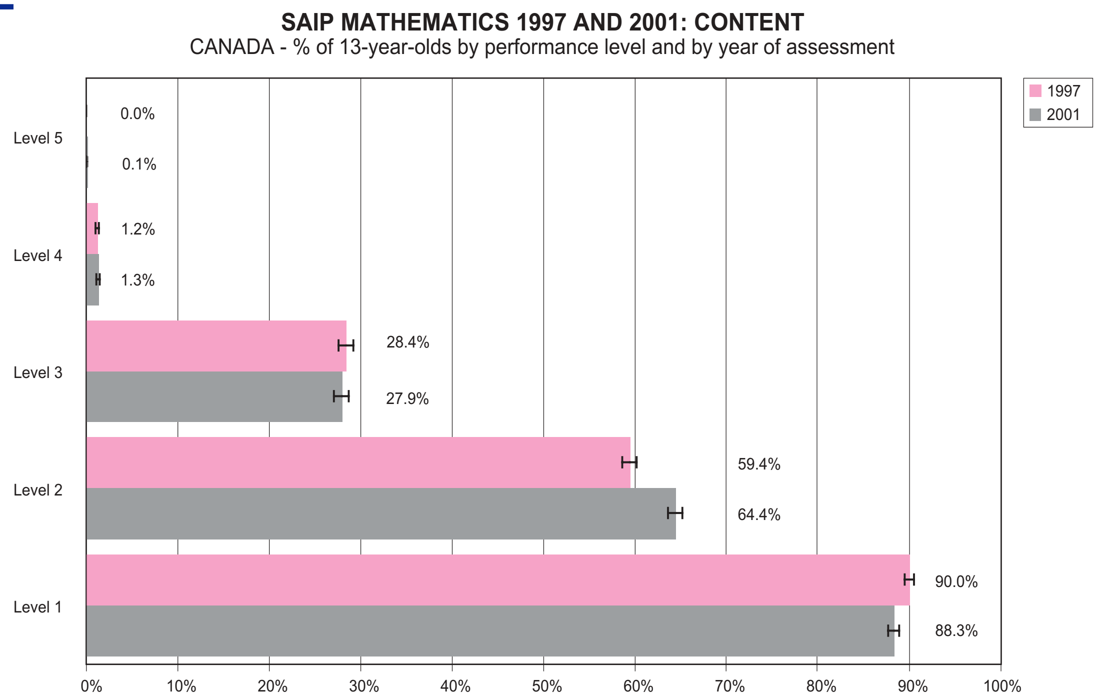
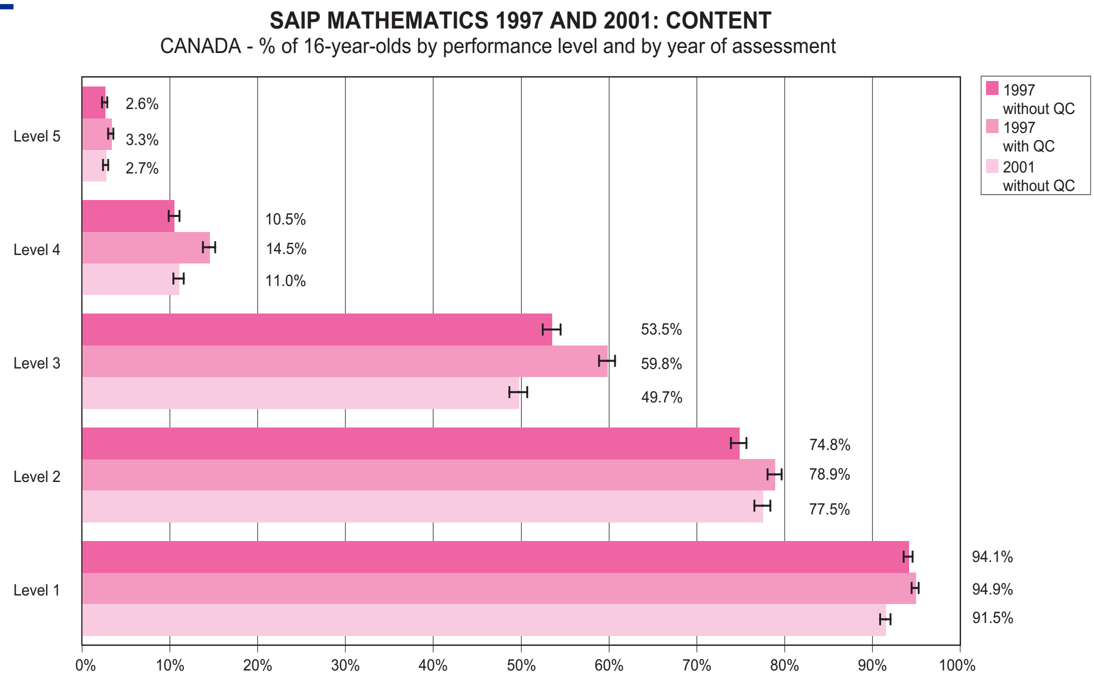


CHART C4



For the content component of the mathematics assessment, significantly more 13-year-old students achieved level 2 in 2001 than in 1997, the year in which the last SAIP Mathematics Assessment was administered. Quebec 16-year-old students did not participate in the SAIP 2001 Mathematics Assessment. In the content component, fewer 16-year-old students achieved levels 1 and 3 in 2001 than in 1997. However, the percentage of 16-year-olds achieving levels 4 and 5 is the same for 1997 and 2001.

CHART C5

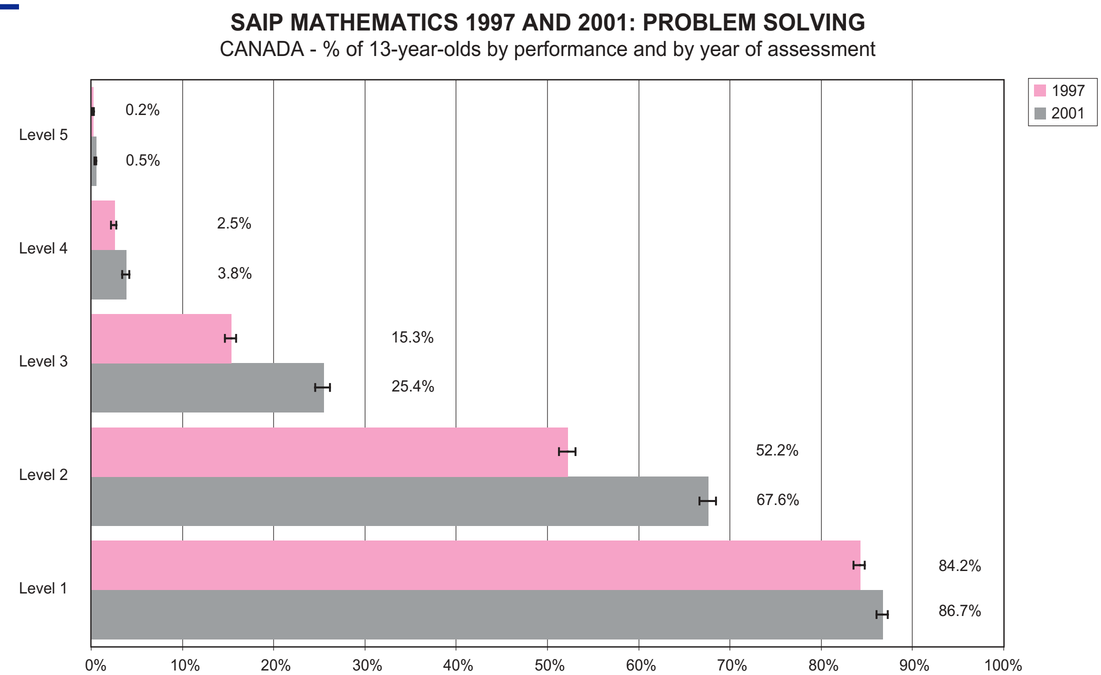
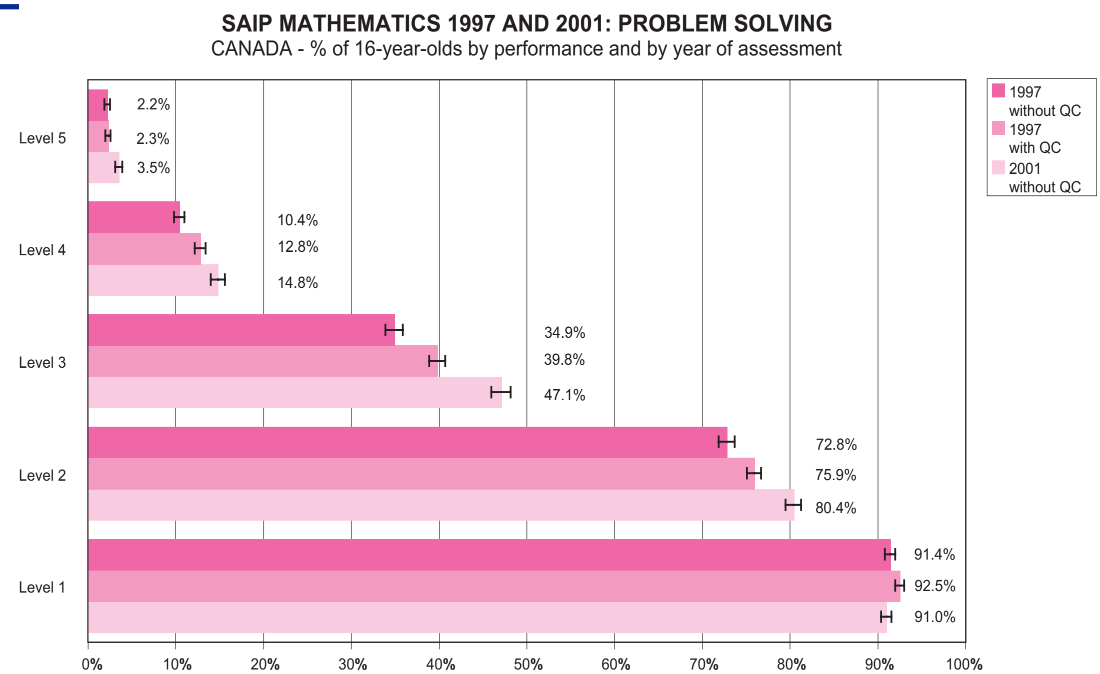


CHART C6



Significant increases in the percentages of 13-year-olds and 16-year-olds achieving levels 2, 3, 4, and 5 in the problem solving component are evident from 1997 to 2001. Quebec 16-year-old students did not participate in the SAIP 2001 Mathematics Assessment.

Preliminary analysis of the 1997 and 2001 results has also shown that the improvement in these results has been due to improved student performance, rather than to any changes in the difficulty of the questions or to the scoring process. Detailed discussion of this will be found in the technical report to be released later.

ACHIEVEMENT DIFFERENCES BY GENDER

There has long been an interest in examining differences in achievement between boys and girls in a variety of subject areas — and at a variety of ages. The following four charts represent the results separated by gender for Mathematics III.

CHART C7

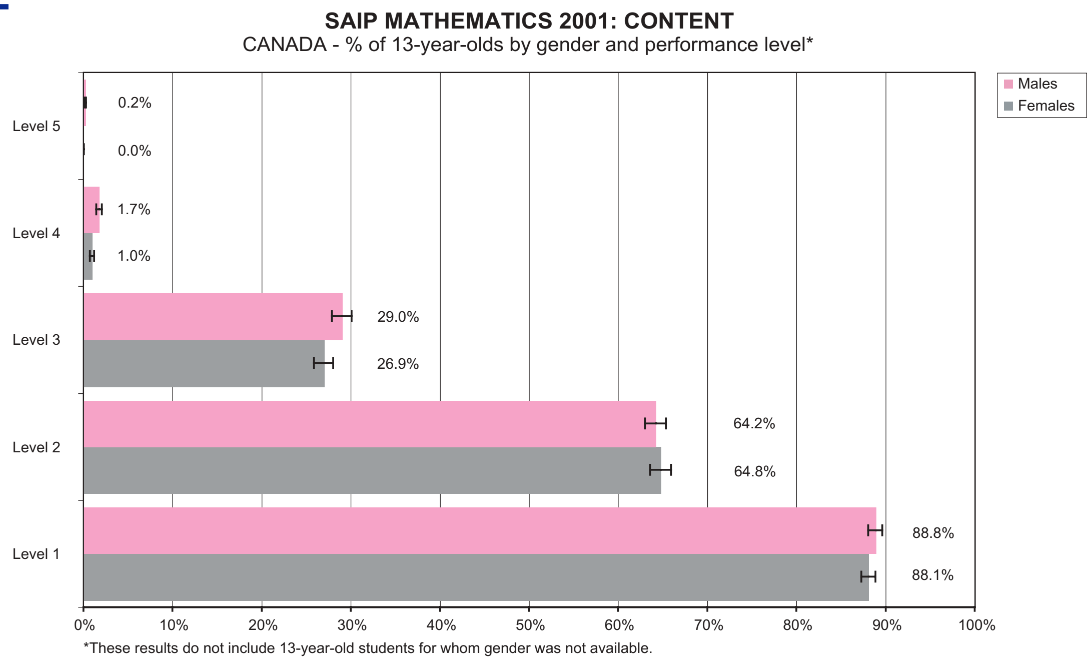
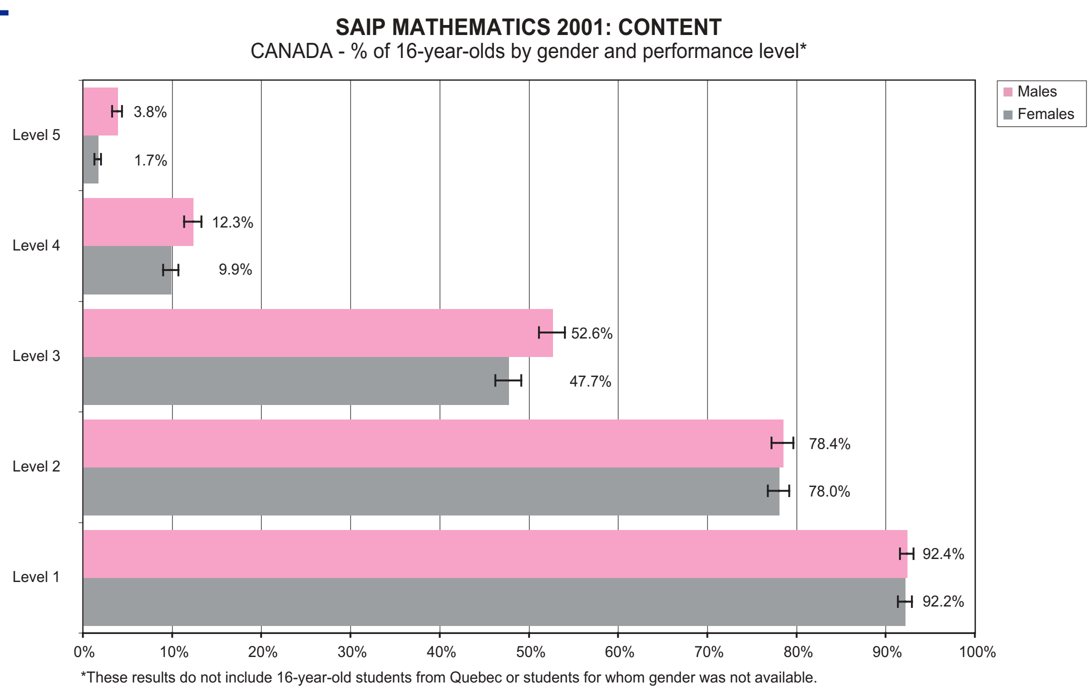


CHART C8



The results in charts C7 and C8 show that slight differences exist in achievement between boys and girls at several levels in mathematics content. For 13-year-old students, slightly more boys than girls achieved levels 4 and 5. For 16-year-old students, slightly more boys than girls achieved levels 3, 4, and 5.

CHART C9

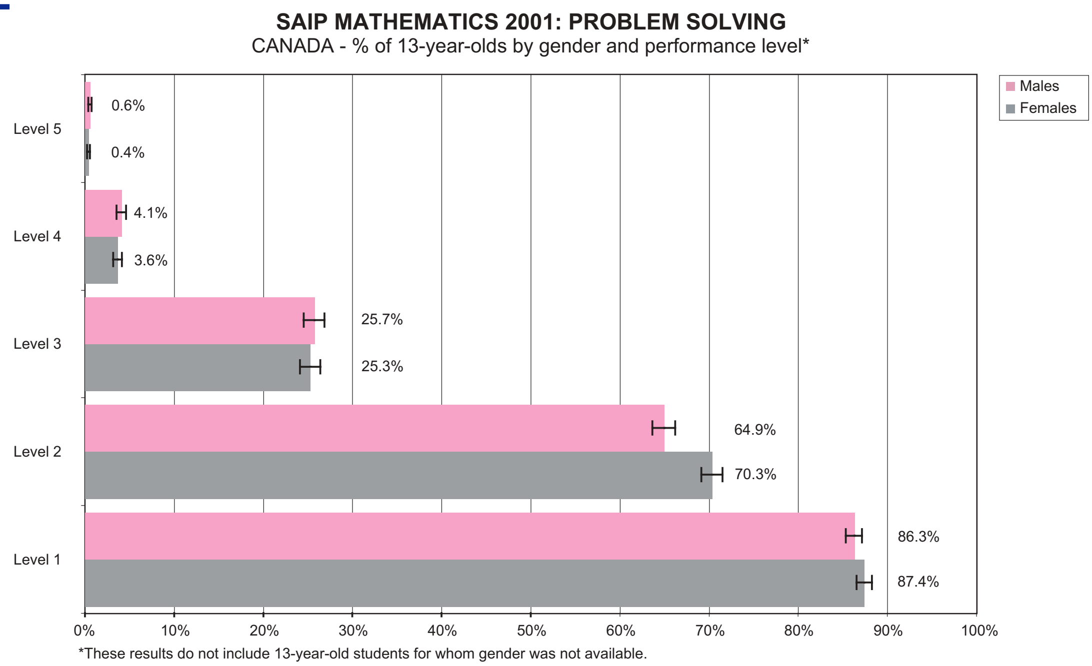
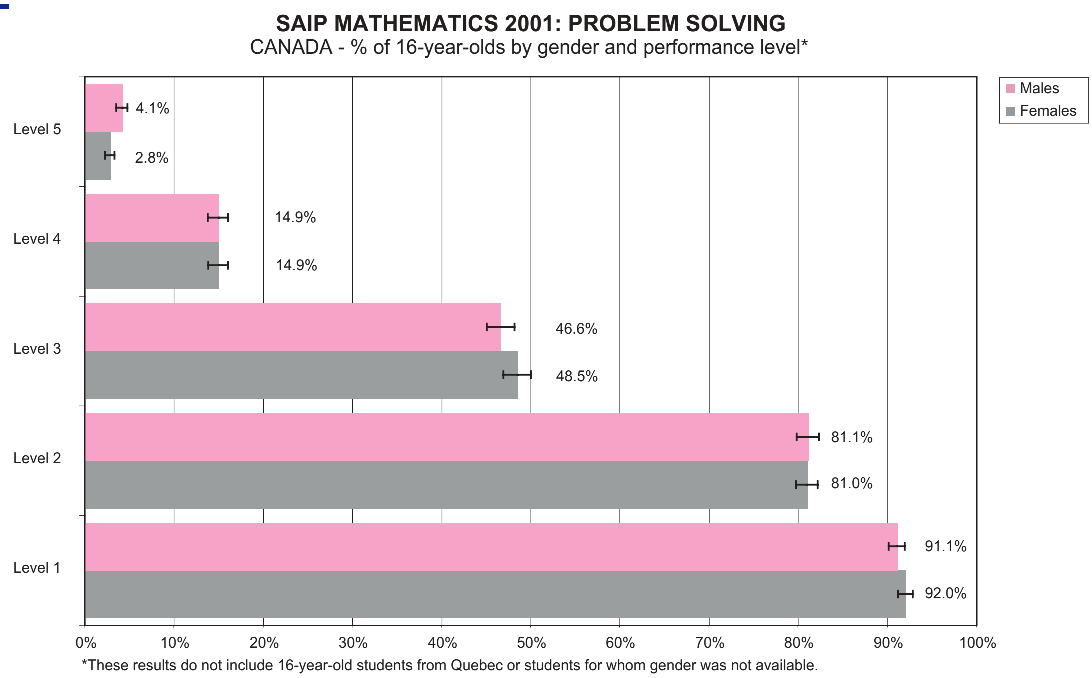


CHART C10



For the problem solving component, there was little difference in performance between male and female students. For 13-year-old students, more girls achieved level 2, while there were no differences in achievement at the other levels. For 16-year-old students, slightly more boys than girls achieved level 5. There were no differences in achievement between boys and girls at other levels.

CHART C11

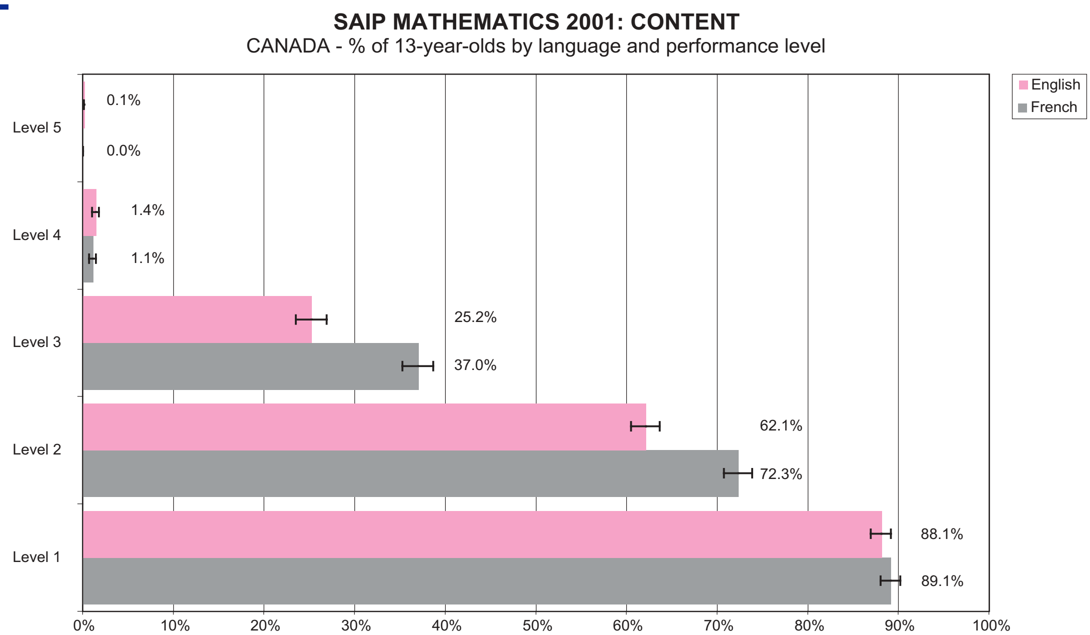
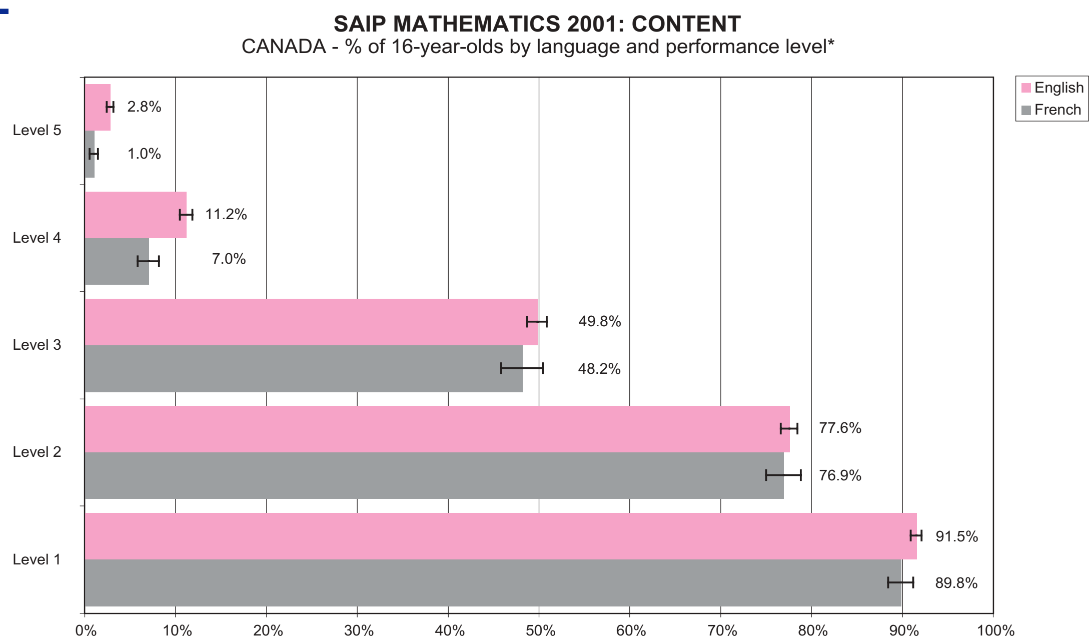


CHART C12



*These results do not include 16-year-old students from Quebec.

When mathematics content results for Canada are examined in terms of language, fewer 13-year-old students who wrote in English reached levels 2 and 3 than those who wrote in French.

For 16-year-old students, a population that does not include students from Quebec, more English-language students reached levels 4 and 5.

CHART C13

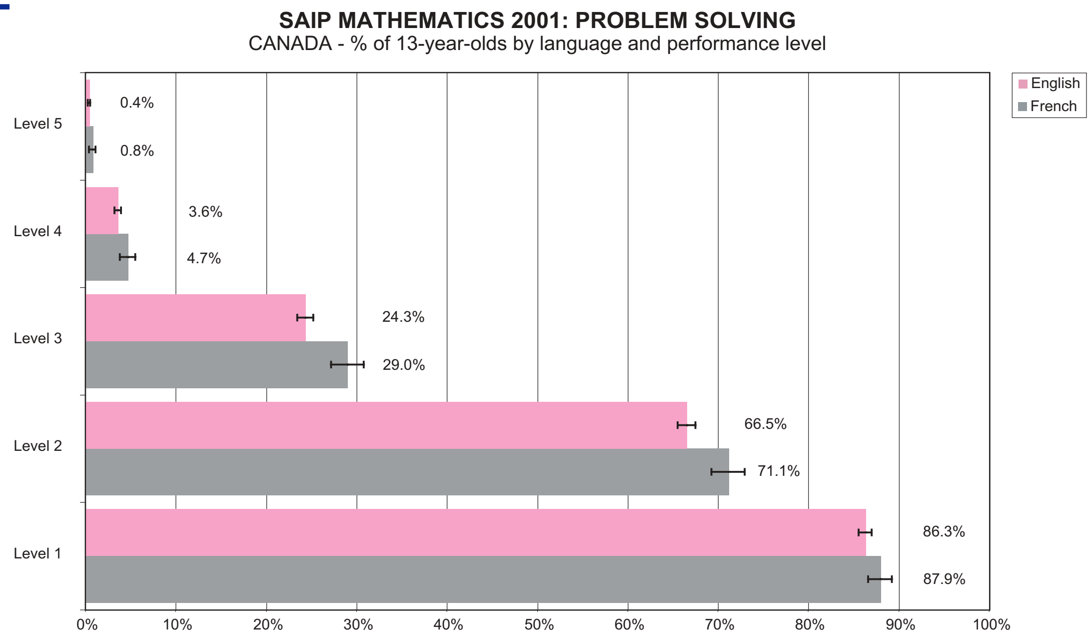
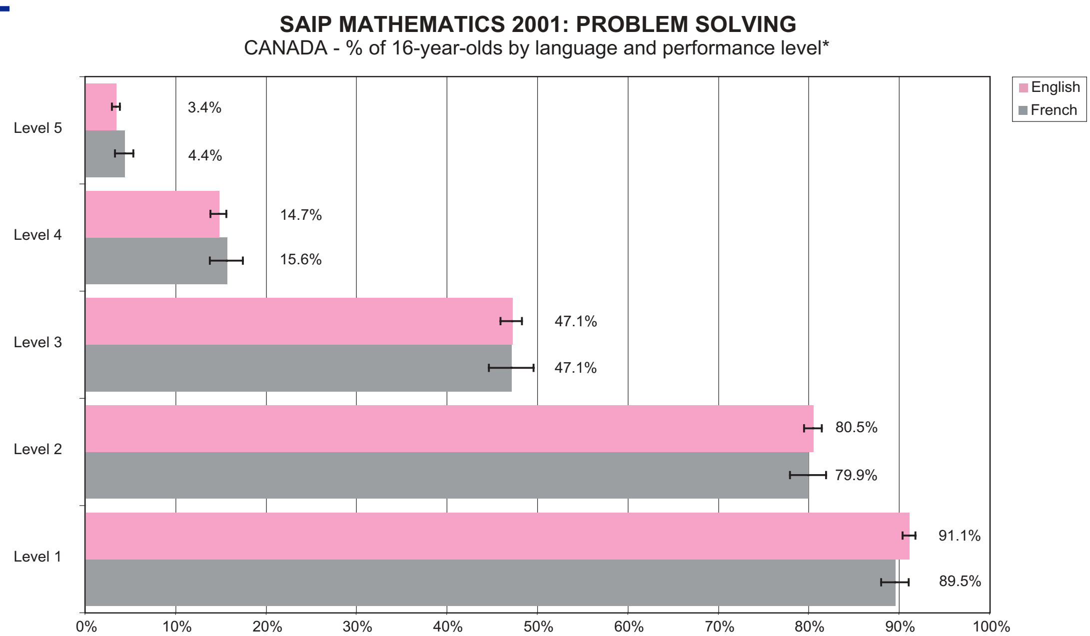


CHART C14



*These results do not include 16-year-old students from Quebec.

Canadian results for problem solving in terms of language show that more 13-year-old students who wrote in French performed at levels 2 and 3 than those who wrote in English.

For 16-year-old students, a population that does not include Quebec students, there were no significant differences at any level of performance.

This collaborative process asked a pan-Canadian panel of educators and non-educators to define pan-Canadian expectations for student achievement in mathematics. The results are found in charts C15 through C18. Specifically, participants were asked to answer independently the questions: ‘‘What percentage of Canadian students should achieve at or above each of the five performance levels, as illustrated by the framework and criteria and by the questions asked?’’

Panellists’ answers to that question were collected to determine the desired Canadian student performance and to help interpret how students should do in comparison with actual results.

A description of this important process is found on page 18 of this report.

In charts C15 through C18, the interquartile range of expectations and the median (mid-point) expectation are identified for each level of achievement. This range, presented as the screened colour around the median, represents the expectations set by 50% of the panellists. Where no screened colour appears, the range of expectations did not vary from the median.

CHART C15

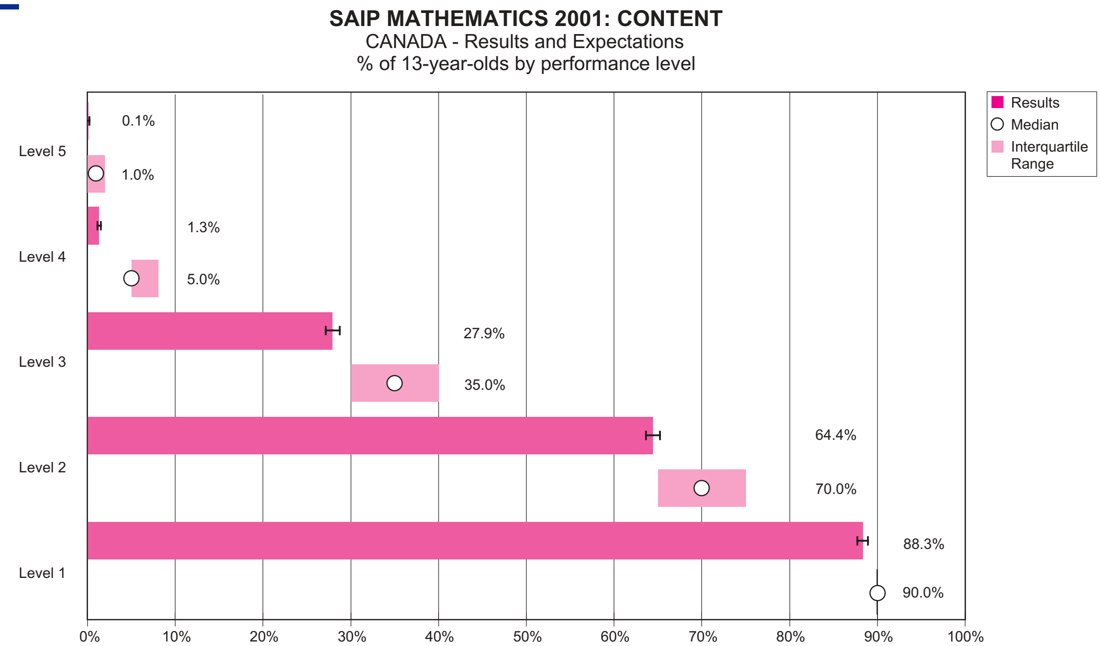
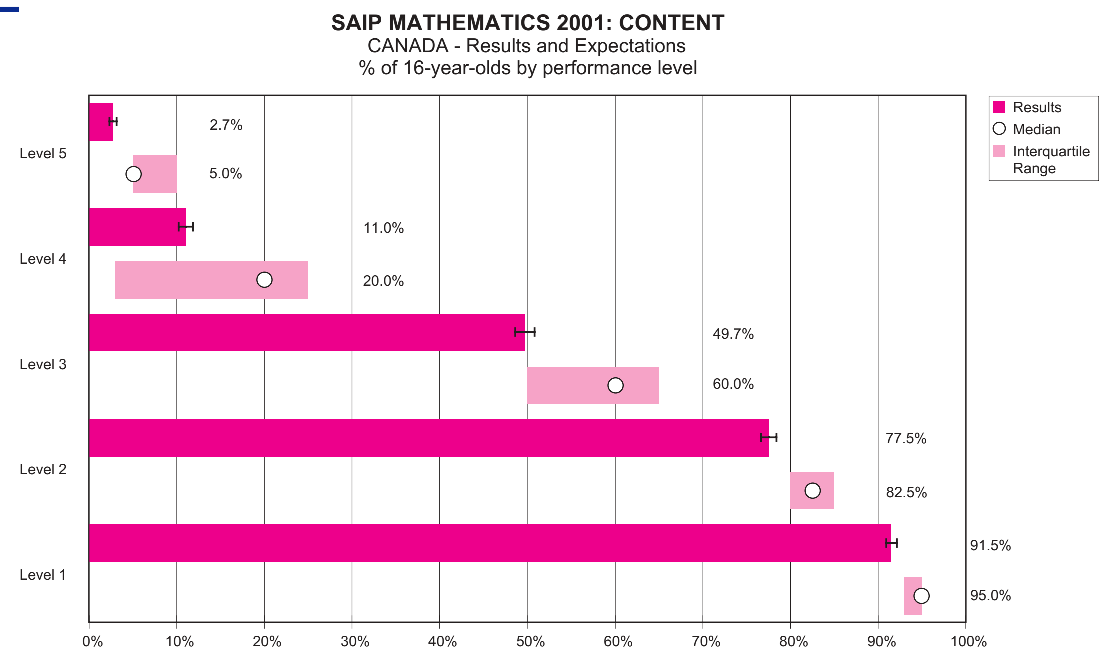


CHART C16



With respect to the mathematics content assessment, as shown on charts C15 and C16, the expectations of panellists were higher than the achievement of both 13-year-old and 16-year-old students.

CHART C17

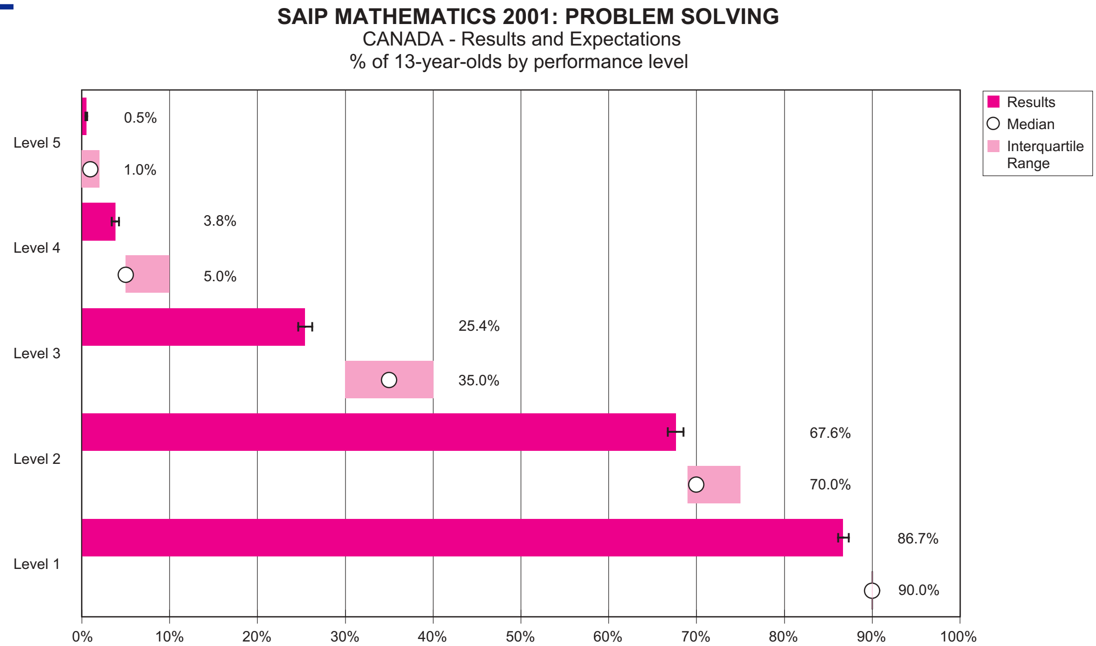
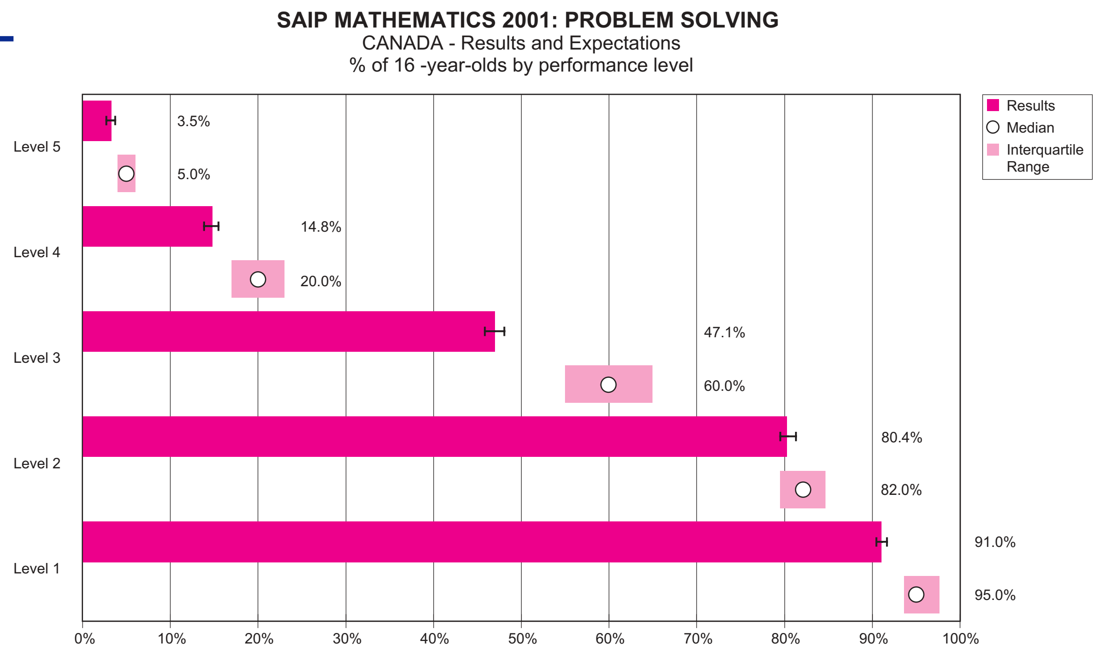


CHART C18



Charts C17 and C18 show that the panel of both educators and non-educators generally are not satisfied with the performance of Canadian students in the problem solving assessment.

The results of these expectation-setting sessions demonstrate the continuing high expectations that all Canadians hold for their students and their school systems.

RESULTS FOR THE JURISDICTIONS

In order to measure student achievement not only for Canada as a whole, but also for individual jurisdictions, a large enough number of students must be included in the sample for each jurisdiction.

OVERVIEW OF ACHIEVEMENT BY LEVEL

Table 3

Jurisdictions performing better than or about the same as Canada[1]

	Jurisdictions performing significantly better than[2] Canada	*Jurisdictions performing performing about the same as[2] Canada*
13-year-old students		
MATHEMATICS CONTENT (64.4% of Canadian 13-year-olds achieved level 2[3] or better.)	Alberta Quebec (F)	British Columbia Ontario (E) Quebec (E)
PROBLEM SOLVING (67.6% of Canadian 13-year-olds achieved level 2[3] or better.)	Alberta	Manitoba (F) Ontario (E) Ontario (F) Quebec (F) Quebec (E) New Brunswick (F) Nova Scotia (F) Yukon
16-year-old students[4]		
MATHEMATICS CONTENT (49.7% of Canadian 16-year-olds achieved level 3[3] or better.)	Alberta Manitoba (F)	British Columbia Manitoba (E) Ontario (E) New Brunswick (F) Nova Scotia (F) Yukon
PROBLEM SOLVING (47.1% of Canadian 16-year-olds achieved level 3[3] or better.)	Alberta Manitoba (F) New Brunswick (F)	British Columbia Saskatchewan Manitoba (E) Ontario (E) Nova Scotia (F)

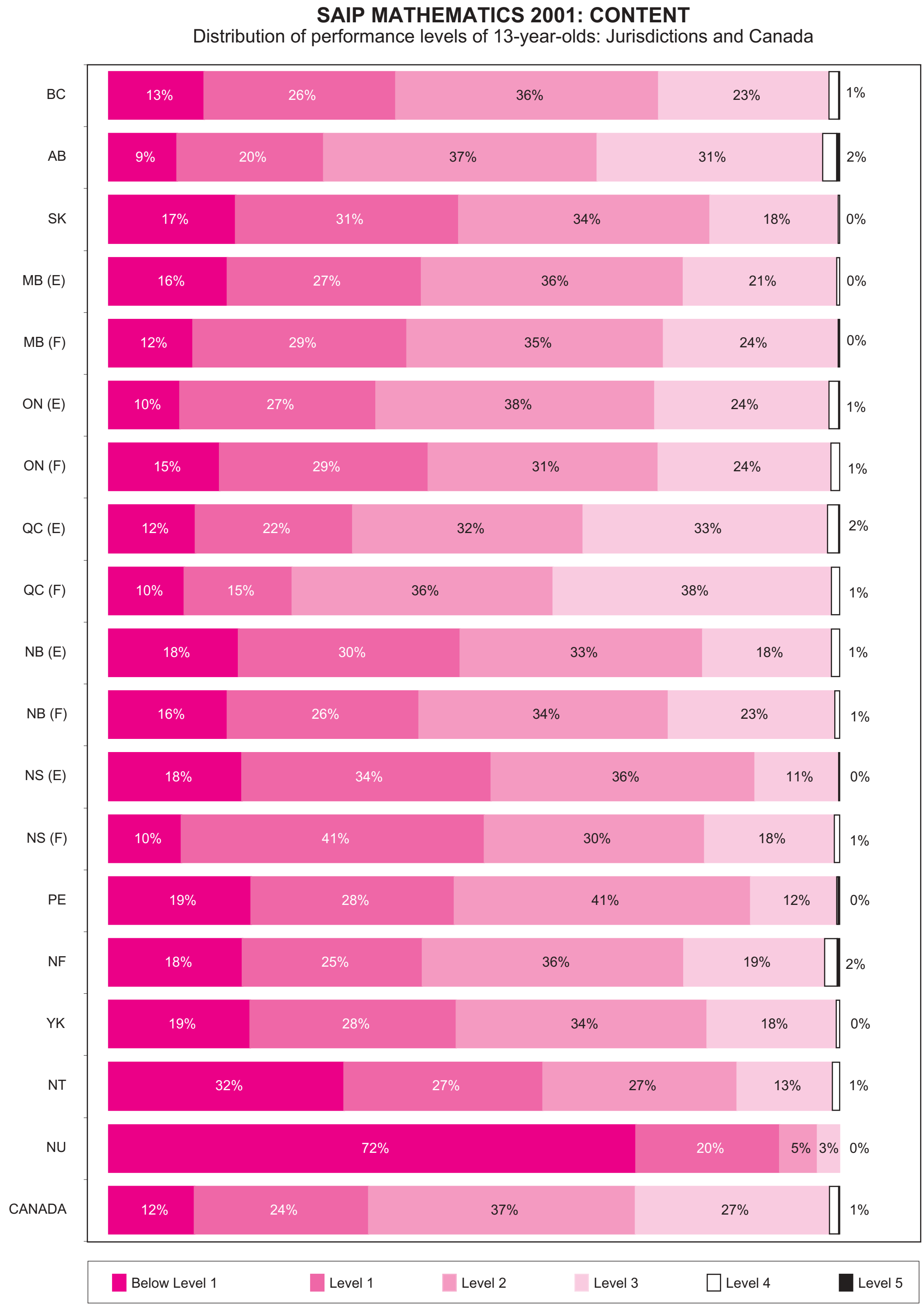
[1] Jurisdictions are not necessarily in rank order.
[2] Differences in scores are statistically significant only when confidence intervals DO NOT overlap. Jurisdictions performing about the same as Canada as a whole have a confidence interval that overlaps that of Canada at the chosen level.
[3] Since the test designers designed instruments such that most 13-year-olds should achieve level 2 and most 16-year-olds level 3, these levels were chosen for this comparison.
[4] Quebec 16-year-olds did not participate.

DISTRIBUTION OF PERFORMANCE LEVELS

Please note that the charts that follow (charts PL1–4) are not cumulative; that is, the bars represent the actual percentage of students at a particular level, rather than those who have achieved a particular level and above.

The following charts present the percentage of students at each achievement level for all jurisdictions plus Canada. The data shown constitute an overview and display the distribution of students at each achievement level. This is one useful way to present comparisons between jurisdictional results and with the Canadian results.

The results do vary from jurisdiction to jurisdiction. The charts show that some performed better than others. Achievement in some is significantly higher or lower than the Canadian results.



Note: None of the jurisdictions had more than 0.5% of the 13-year-old student population achieving level 5 in mathematics content.

CHART PL2

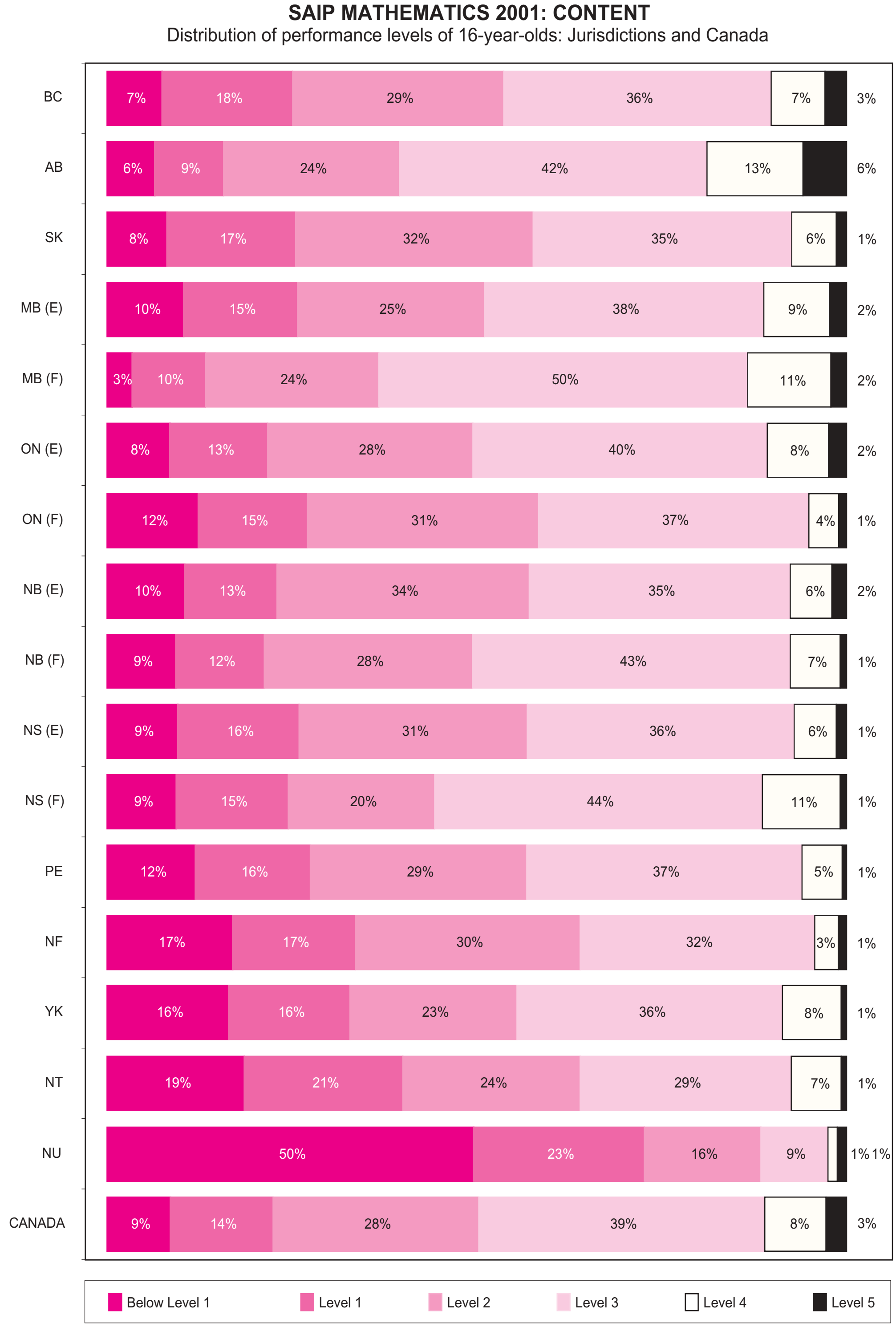

SAIP MATHEMATICS 2001: CONTENT
Distribution of performance levels of 16-year-olds: Jurisdictions and Canada
BC 7% 18% 29% 36% 7% 3%
AB 6% 9% 24% 42% 13% 6%
SK 8% 17% 32% 35% 6% 1%
MB (E) 10% 15% 25% 38% 9% 2%
MB (F) 3% 10% 24% 50% 11% 2%
ON (E) 8% 13% 28% 40% 8% 2%
ON (F) 12% 15% 31% 37% 4% 1%
NB (E) 10% 13% 34% 35% 6% 2%
NB (F) 9% 12% 28% 43% 7% 1%
NS (E) 9% 16% 31% 36% 6% 1%
NS (F) 9% 15% 20% 44% 11% 1%
PE 12% 16% 29% 37% 5% 1%
NF 17% 17% 30% 32% 3% 1%
YK 16% 16% 23% 36% 8% 1%
NT 19% 21% 24% 29% 7% 1%
NU 50% 23% 16% 9% 1% 1%
CANADA 9% 14% 28% 39% 8% 3%
Below Level 1
Level 1
Level 2
Level 3
Level 4
Level 5

CHART PL3

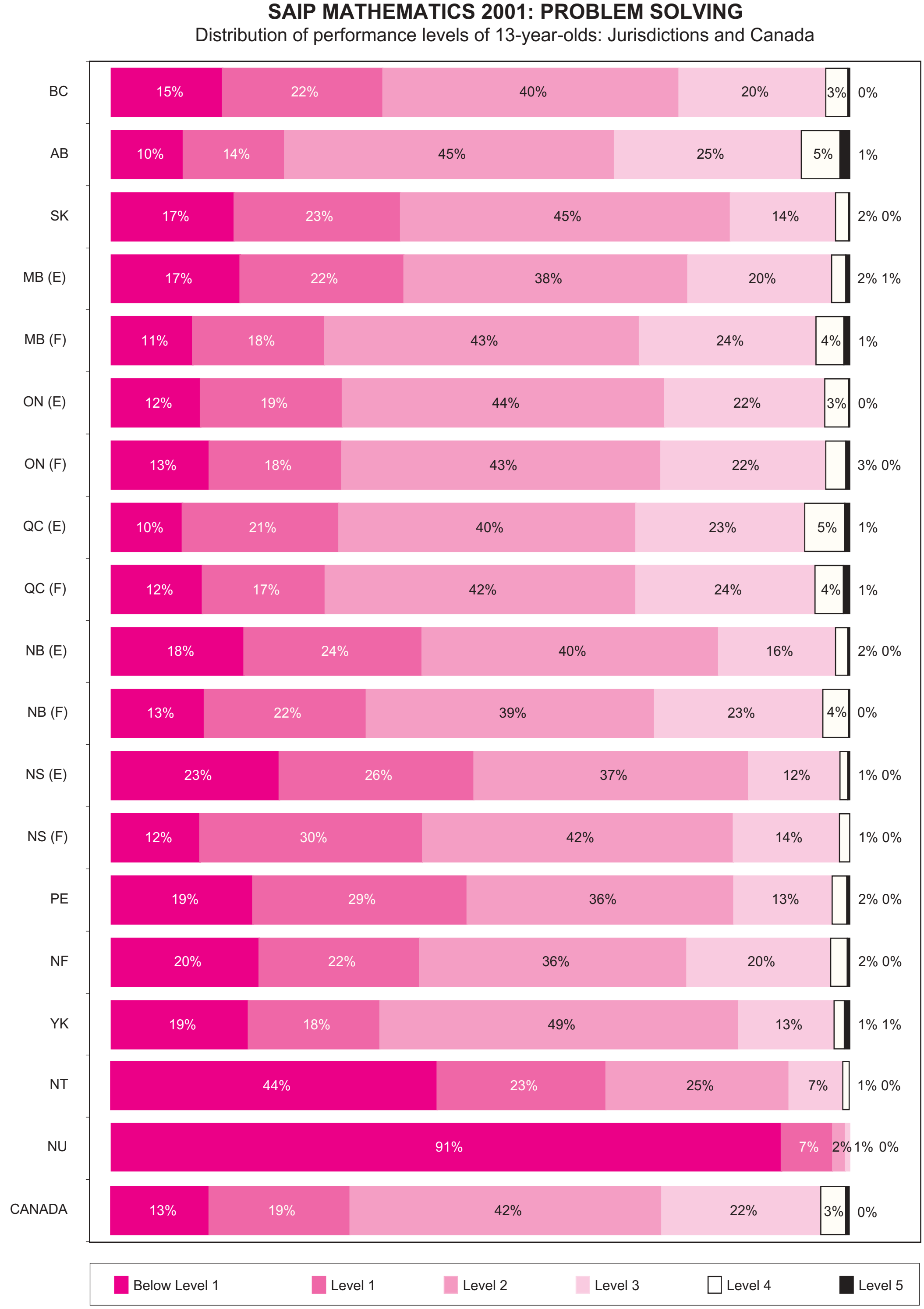
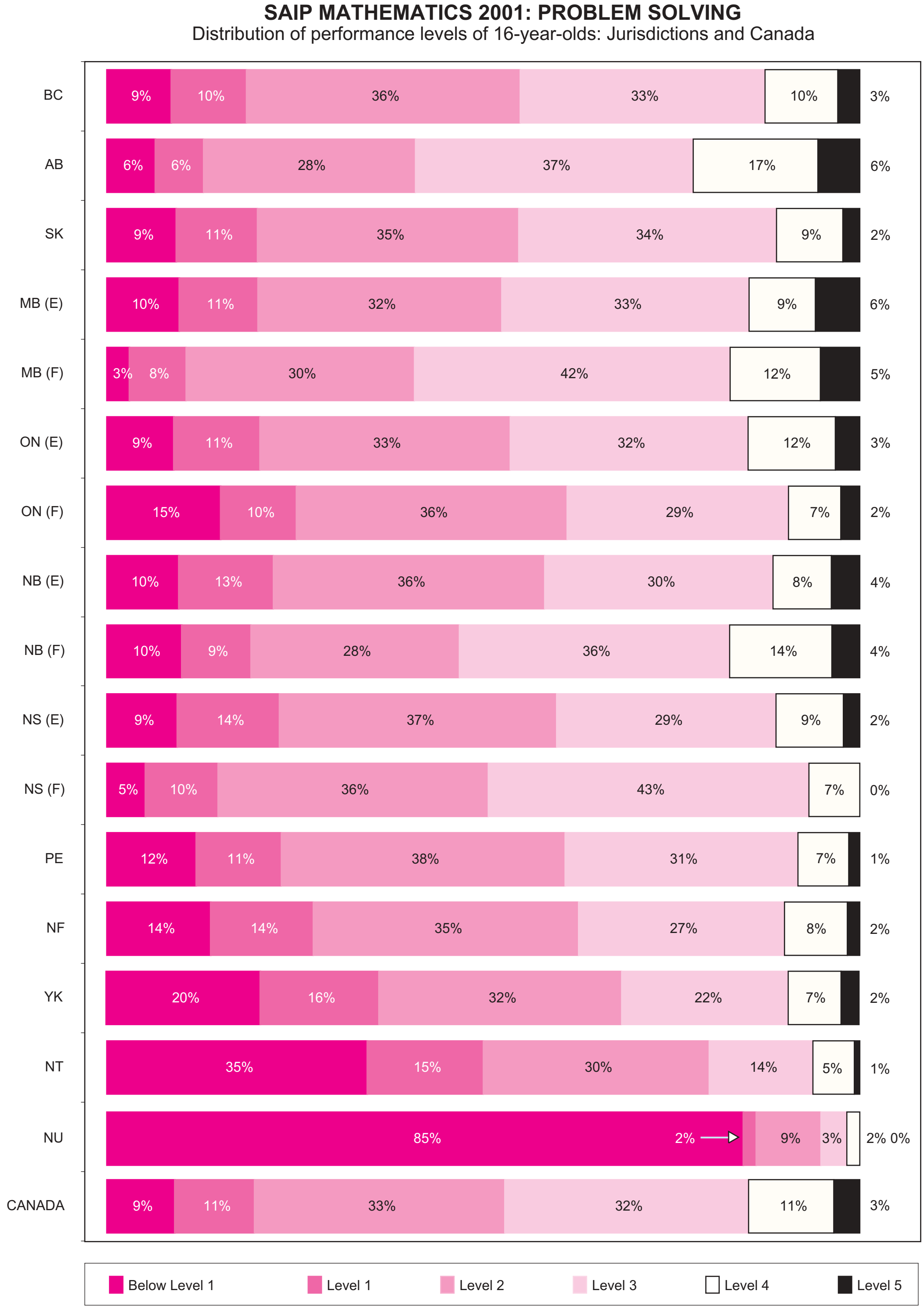

SAIP MATHEMATICS 2001: PROBLEM SOLVING
Distribution of performance levels of 13-year-olds: Jurisdictions and Canada
BC 15% 22% 40% 20% 3% 0%
AB 10% 14% 45% 25% 5% 1%
SK 17% 23% 45% 14% 2% 0%
MB (E) 17% 22% 38% 20% 2% 1%
MB (F) 11% 18% 43% 24% 4% 1%
ON (E) 12% 19% 44% 22% 3% 0%
ON (F) 13% 18% 43% 22% 3% 0%
QC (E) 10% 21% 40% 23% 5% 1%
QC (F) 12% 17% 42% 24% 4% 1%
NB (E) 18% 24% 40% 16% 2% 0%
NB (F) 13% 22% 39% 23% 4% 0%
NS (E) 23% 26% 37% 12% 1% 0%
NS (F) 12% 30% 42% 14% 1% 0%
PE 19% 29% 36% 13% 2% 0%
NF 20% 22% 36% 20% 2% 0%
YK 19% 18% 49% 13% 1% 1%
NT 44% 23% 25% 7% 1% 0%
NU 91% 7% 2% 1% 0%
CANADA 13% 19% 42% 22% 3% 0%
Below Level 1
Level 1
Level 2
Level 3
Level 4
Level 5

CHART PL4



SAIP MATHEMATICS 2001: PROBLEM SOLVING
Distribution of performance levels of 16-year-olds: Jurisdictions and Canada
BC 9% 10% 36% 33% 10% 3%
AB 6% 6% 28% 37% 17% 6%
SK 9% 11% 35% 34% 9% 2%
MB (E) 10% 11% 32% 33% 9% 6%
MB (F) 3% 8% 30% 42% 12% 5%
ON (E) 9% 11% 33% 32% 12% 3%
ON (F) 15% 10% 36% 29% 7% 2%
NB (E) 10% 13% 36% 30% 8% 4%
NB (F) 10% 9% 28% 36% 14% 4%
NS (E) 9% 14% 37% 29% 9% 2%
NS (F) 5% 10% 36% 43% 7% 0%
PE 12% 11% 38% 31% 7% 1%
NF 14% 14% 35% 27% 8% 2%
YK 20% 16% 32% 22% 7% 2%
NT 35% 15% 30% 14% 5% 1%
NU 85% 2% 9% 3% 2% 0%
CANADA 9% 11% 33% 32% 11% 3%
Below Level 1
Level 1
Level 2
Level 3
Level 4
Level 5

INDIVIDUAL JURISDICTION REPORTS

The following section presents a description of the context in which each jurisdiction's students learn mathematics, including such areas as social factors, the organization of the school system, and mathematics teaching and assessment in the schools.

Charts presenting the results for that jurisdiction in comparison with the results for Canada follow the context statements.

Note: Quebec 16-year-old students did not participate in the assessment. This must be taken into consideration when comparing jurisdictional results with those of Canada.

BRITISH COLUMBIA

Context Statement

Social Context

British Columbia has a population of approximately 4 million with 86% of people living in urban areas. The province promotes student achievement for all. Varied specialized educational services are offered. Student enrolment in English-as-a-second-language (ESL) classes has increased exponentially over the last ten years with about 10% of public school students categorized as ESL students. The number of Aboriginal students enrolled in British Columbia public schools has increased to approximately 7% of the public school population. Enrolment in French Immersion and Programme francophone has also increased steadily (over 5% of the total population). The province supported a further 11% of students through special education funding.

Organization of the School System

Approximately 634,000 students are enrolled in the public school system, which employs over 39,000 educators. The province has 59 school districts and the Conseil scolaire francophone, in addition to its independent schools. Most 13-year-old students are in grade 8 or 9, while 16-year-olds are in grade 11 or 12.

Mathematics Teaching

There is only one common mathematics course for students up to and including grade 8. In grade 9, students can select either the Principles of Mathematics pathway or the Applications of Mathematics pathway. In grade 10, a third pathway (Essentials of Mathematics) is also offered. In addition to these courses, an Introductory Mathematics course is offered in grade 11 and a calculus course in grade 12.

As is the case in many other provinces and in many subject areas, British Columbia is completing a thorough review of its mathematics curricula. Integrated Resource Packages (IRPs), consistent with *The Common Curriculum Framework* developed by the Western Canadian Protocol (WCP) for Collaboration in Basic Education, are gradually being introduced. IRPs describe the provincially prescribed learning outcomes, suggested instructional and assessment strategies, and recommended learning resources. Learning outcomes in mathematics are grouped under five organizers identified in WCP documents: problem solving, number, patterns and relations, shape and space, and statistics and probability.

Mathematics is increasingly important in British Columbia's technological society. To succeed in the workplace, students require the ability to reason and communicate, to solve problems, and to understand and use probability and statistics, technology, and measurement. Skills in these areas are also required of all mathematically literate citizens. As they develop mathematical literacy, students generally experience a growth in motivation and self-confidence in mathematics. The provincial mathematics curriculum emphasizes the practical applications of learning and the types of skills needed in the knowledge-based workplace. To ensure that students are prepared for the demands of both further education and the workplace, the mathematics curriculum must help students develop mathematical literacy.

Mathematics Assessment

In addition to participating in national (SAIP) and international (TIMSS, PISA) assessments, British Columbia assesses all students in grades 4, 7, and 10 on an annual basis in reading comprehension, writing, and numeracy through the Foundation Skills Assessment (FSA). The FSA provides teachers, students, and parents with an additional external source of information about a student's performance in these important skill areas. The skills assessed by the FSA are closely linked to the prescribed provincial learning outcomes. FSA results do not count toward a student's report card, but school, district, and provincial results are available to the public.

At the grade 12 level, provincial examinations are administered to students taking the Applications of Mathematics and Principles of Mathematics courses. These exams count for 40% of a student's final mark on the course. To meet British Columbia's graduation requirements, students need to successfully complete either the grade 11 Applications of Mathematics, Essentials of Mathematics, or Principles of Mathematics course.

Results for British Columbia

Mathematics Content

British Columbia students in both age groups performed as well as Canada as a whole.

Fewer 16-year-old students reached level 3 in the 2001 assessment than in the 1997 assessment. There were no significant changes in the performance of British Columbia 13-year-old students.

CHART BC1

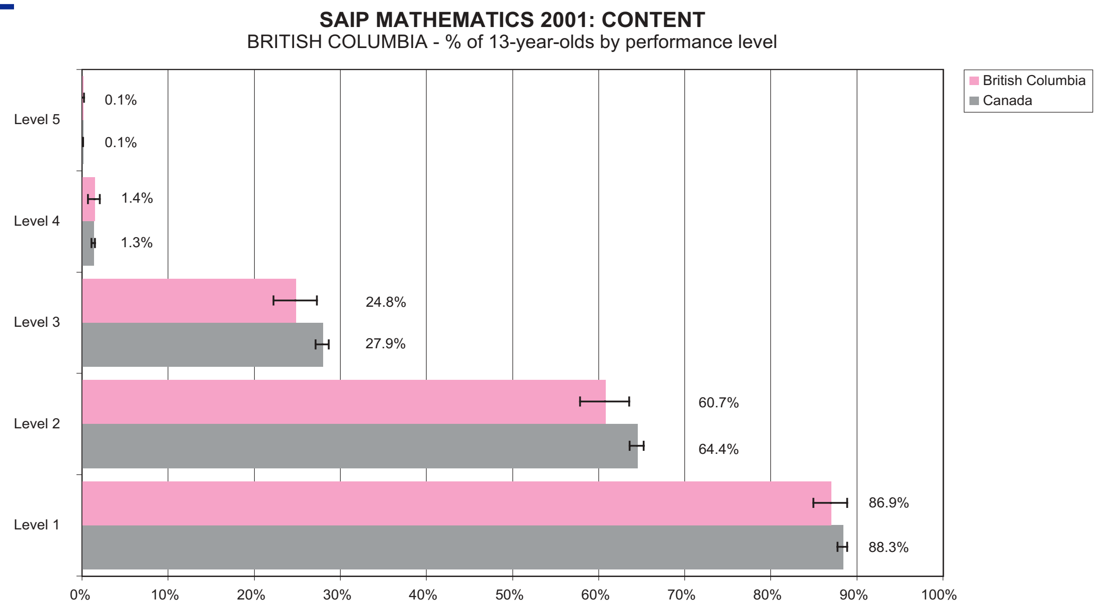
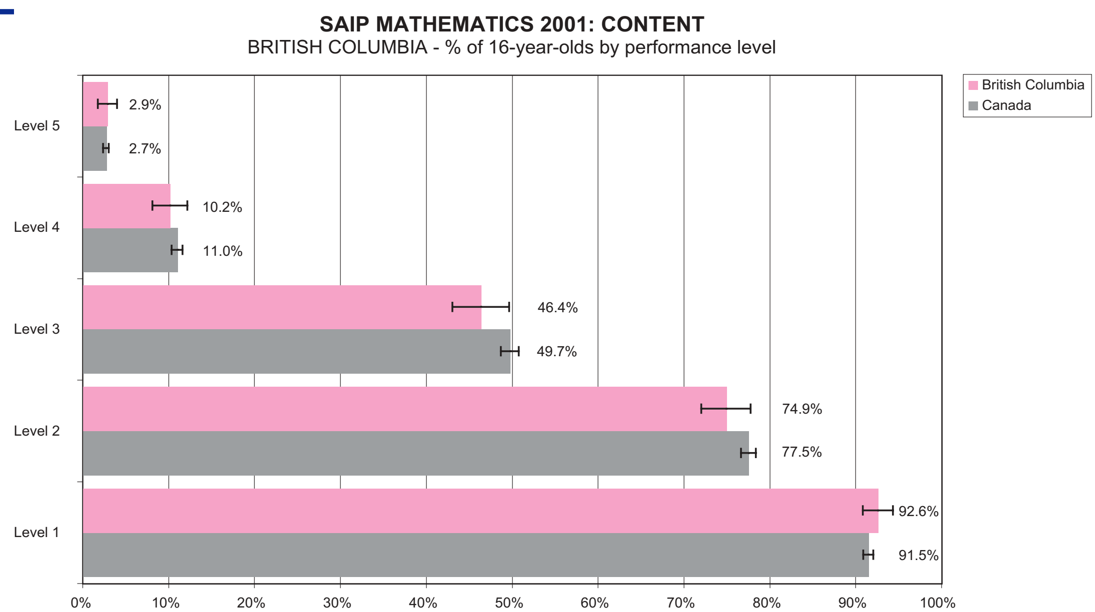


CHART BC2



Problem Solving

In general, British Columbia students performed as well as the Canadian average. Slightly fewer 13-year-old students reached level 2 than did the Canadian average.

More 13-year-old and 16-year-old students reached levels 2 and 3 in 2001 than in the 1997 assessment.

CHART BC3

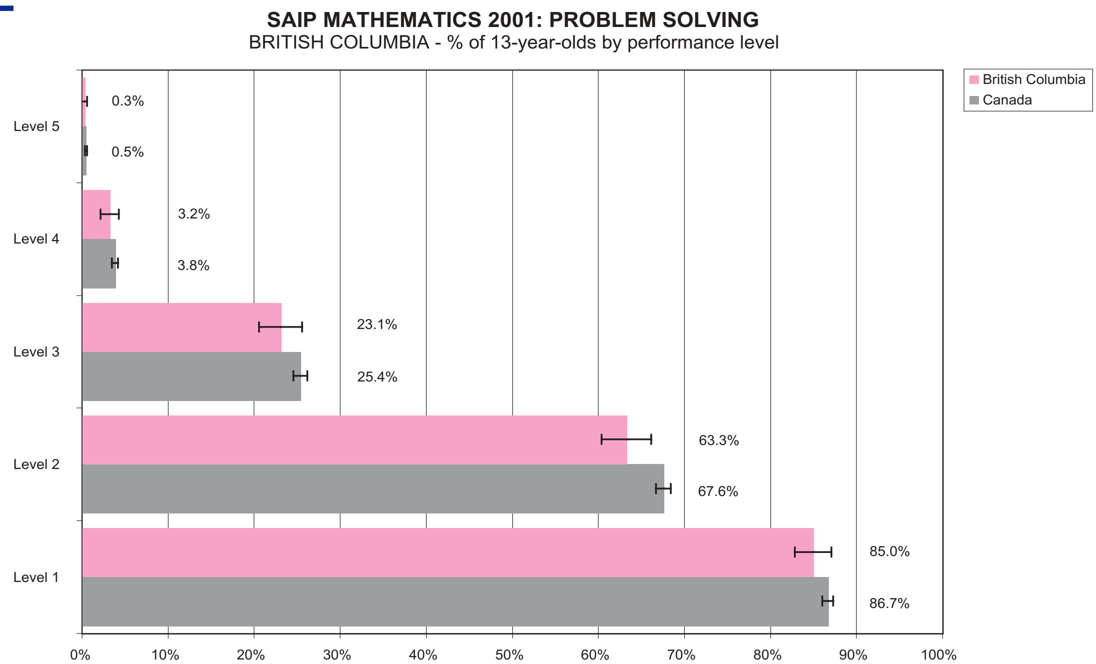
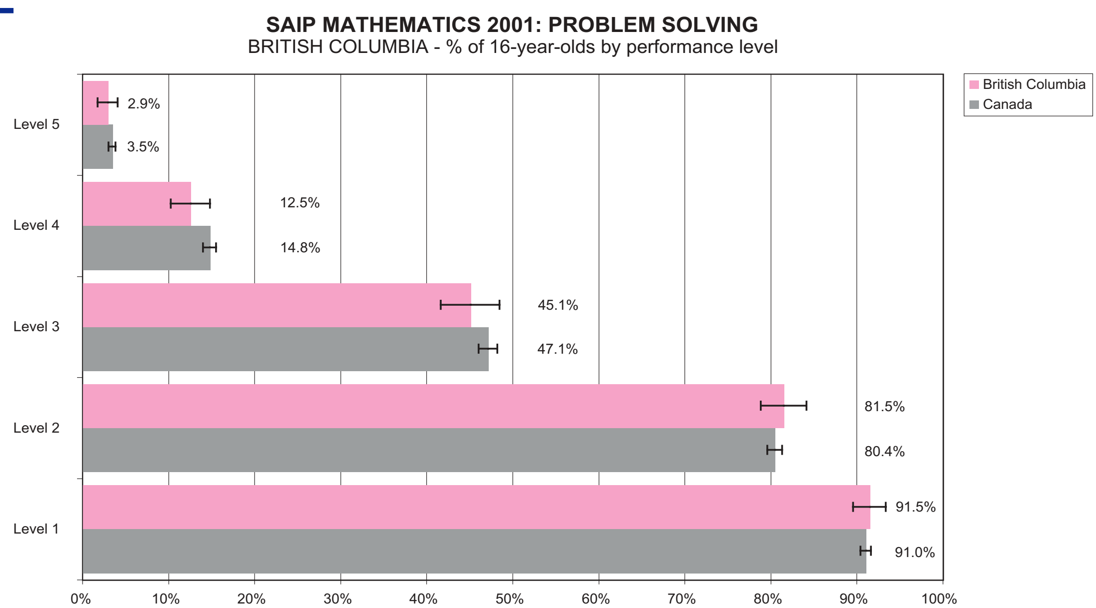


CHART BC4



Context Statement

Social Context

Alberta has a multicultural population of approximately 3 million. All children are required to attend school from age 6 to age 16.

The Minister of Learning defines the curriculum and standards for student achievement in consultation with employers, parents, school authorities, teachers, and other stakeholders. Schools, school authorities, and the Minister of Learning assess and report yearly to the public on a range of student outcomes.

Organization of the School System

Nearly all (99.9%) of the 42,432 thirteen-year-old students in Alberta are enrolled in junior high school. Only one mathematics course is offered at each of grades 7, 8, and 9.

Percentage of 13-year-old students in a mathematics course in each grade

	1997–98	*2000–01*
Grade 7	7.4	5.8
Grade 8	65.6	65.3
Grade 9	25.3	27.9

	1997–98	*2000–01*
French Immersion	5.3	4.8
Francophone	0.5	0.6

Out of the 42,275 sixteen-year-old students in the province, nearly all (98.8%) are enrolled in senior high school. The senior high school mathematics program has been revised since the administration of SAIP Mathematics II in 1997–98. The new program, which was being phased in during the 2000–01 school year, consists of four course sequences: Pure Mathematics 10–20–30; Applied Mathematics 10–20–30; Mathematics 14–24; Mathematics 16–26. The 10–30 sequences are designed for students contemplating postsecondary study and careers; the 14–24 sequence is for general program students, some of whom are not planning postsecondary studies; and the 16–26 sequence is for students enrolled in the Integrated Occupational Program.

	1997–98	*2000–01*
Number of 16-year-old-students in the province	38,929	42,275
Number of 16-year-old students taking a math course	32,582	34,517
Percentage of 16-year-old students taking a math course	83.7%	81.6%

The following are the course completions for 16-year-old students as a percentage of the population:

1997–98

	Grade 10		Grade 11		Grade 12
Number and % in grade	5,041 (12.9%)		23,976 (61.6%)		9,286 (23.9%)
Math 10	5.5%	Math 20	32.3%	Math 30	18.9%
Math 13	9.9%	Math 23	19.2%	Math 33	8.0%
Math 14	5.3%	Math 24	5.6%		
Math 16	1.1%	Math 26	0.7%		

2000–01

	Grade 10		Grade 11		Grade 12
Number and % in grade	4,097 (9.7%)		27,189 (64.3%)		10,478 (24.8%)
Pure Math 10	5.3%	Pure Math 20	30.4%	Pure Math 30	17.6%
Applied Math 10	5.2%	Applied Math 20	8.1%	Applied Math 30	2.0%
Math 14	5.5%	Math 23	10.0%	Math 30	1.2%
Math 16	0.8%	Math 24	7.6%	Math 33	4.9%
		Math 26	0.6%		

Mathematics Teaching

Alberta Learning reviews and revises the mathematics curriculum in a ten-year cycle. As a core program, the mathematics program identifies goals designed to prepare students to use mathematics confidently to solve problems, to communicate and reason mathematically, to appreciate and value mathematics, to commit themselves to lifelong learning and to become mathematically literate adults, and to use mathematics to contribute to society.

Mathematics is a common human activity, increasing in importance in a rapidly advancing technological society. Proficiency in using mathematics increases the opportunities available to individuals. Students need to become mathematically literate in order to explore problem-solving situations, to accommodate to changing conditions, and to actively create new knowledge in striving for self-fulfillment.

At the completion of a program, students should have developed a positive attitude toward mathematics and have a base of knowledge and skills related to number, patterns and relations, shape and space, and statistics and probability.

It is important for students to develop a positive attitude toward mathematics so that they can become confident in their ability to undertake the problems of a changing world, thereby experiencing the power and usefulness of mathematics. Students should also gain an understanding and appreciation of the contributions of mathematics, as a science and as an art, to civilization and to culture.

Specific outcomes in Alberta's curriculum expect students to do the following:

- exhibit a positive attitude toward mathematics
- engage and persevere in mathematical tasks and projects
- contribute to mathematical discussions
- take risks in performing mathematical tasks
- exhibit curiosity
- show some enjoyment of mathematical experiences

All students should receive a level of mathematics education appropriate to their needs and abilities.

Mathematics Assessment

Since 1982, data about student performance in mathematics have been collected through a provincial assessment program for grades 3, 6, and 9. Since 1995, tests have been administered annually. As well, since 1984, provincial diploma examinations have counted for 50% of a student's final mark in Mathematics 30. A diploma examination in Mathematics 33 has been offered since 1996. These examinations are being phased out and replaced by examinations in Pure and Applied Mathematics 30. All diploma examinations include a written component that emphasizes communication, problem solving, and application in mathematics. The province has developed the Classroom Assessment Materials Project (CAMP) for use by teachers in grades 1, 2, 4, 5, 7, 8, 10, and 11. This award-winning program provides examples of student work that illustrate standards.

Provincial tests are based on provincial standards and provide information on the degree to which students in the province have met these standards.

Results for Alberta

Mathematics Content

Alberta students performed as well as or often better than Canada as a whole. Significantly more Alberta students in both age groups achieved levels 2 and 3. More 13-year-old students reached level 1, and more 16-year-old students reached levels 4 and 5, than the Canadian average.

There were no significant changes in achievement in mathematics content for Alberta students between 1997 and 2001.

CHART AB1

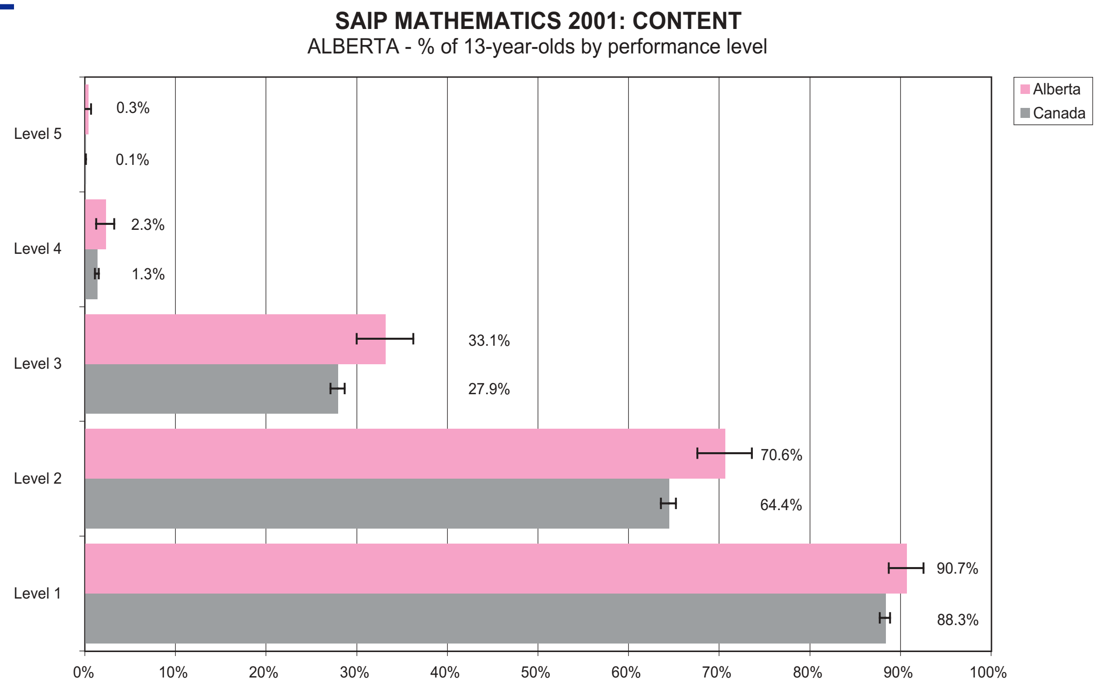
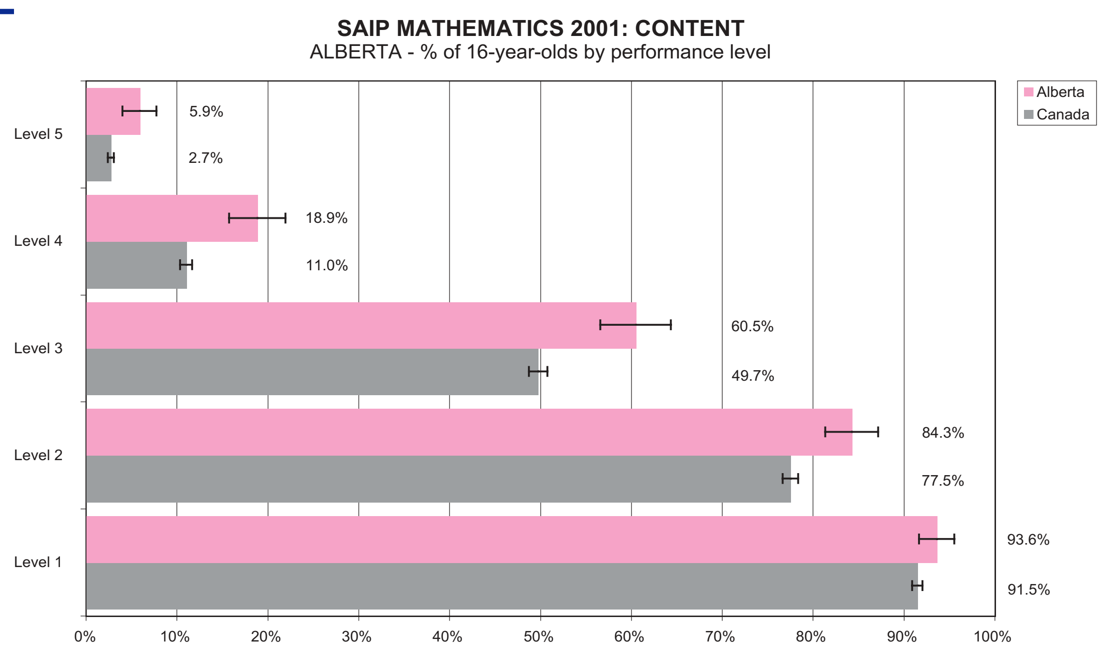


CHART AB2



Problem Solving

In general, Alberta students performed better than the Canadian average in problem solving. Significantly more Alberta students in both age groups achieved levels 2, 3, and 4, while more 13-year-old students reached level 1 as well.

In comparison with the results of the 1997 assessment, there were significant increases in the number of students in both age groups in the 2001 assessment reaching levels 2, 3, and 4.

CHART AB3

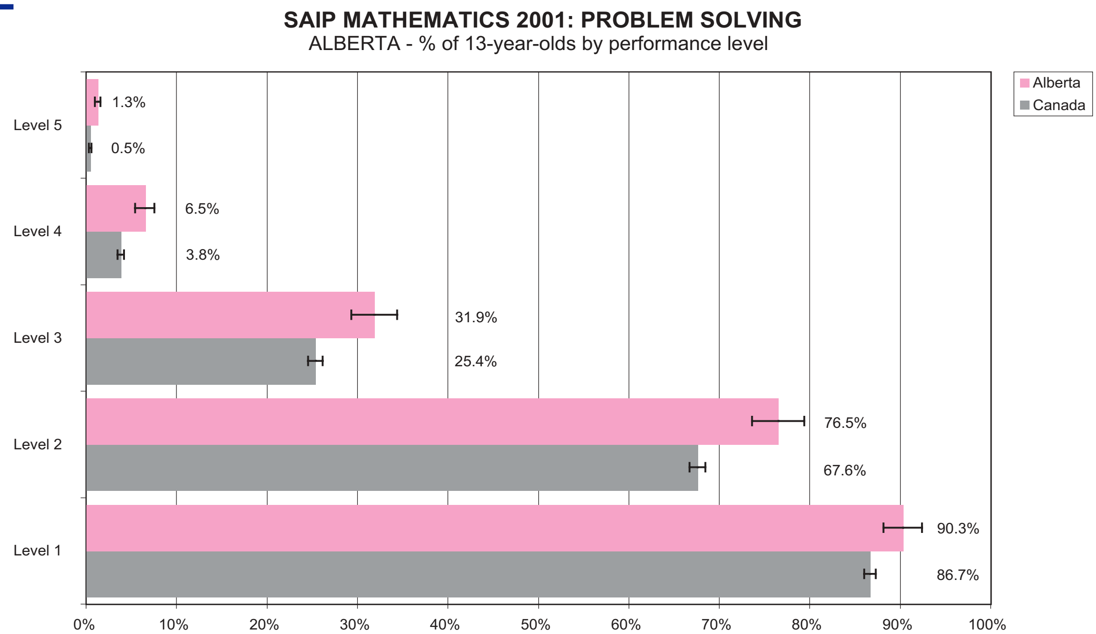
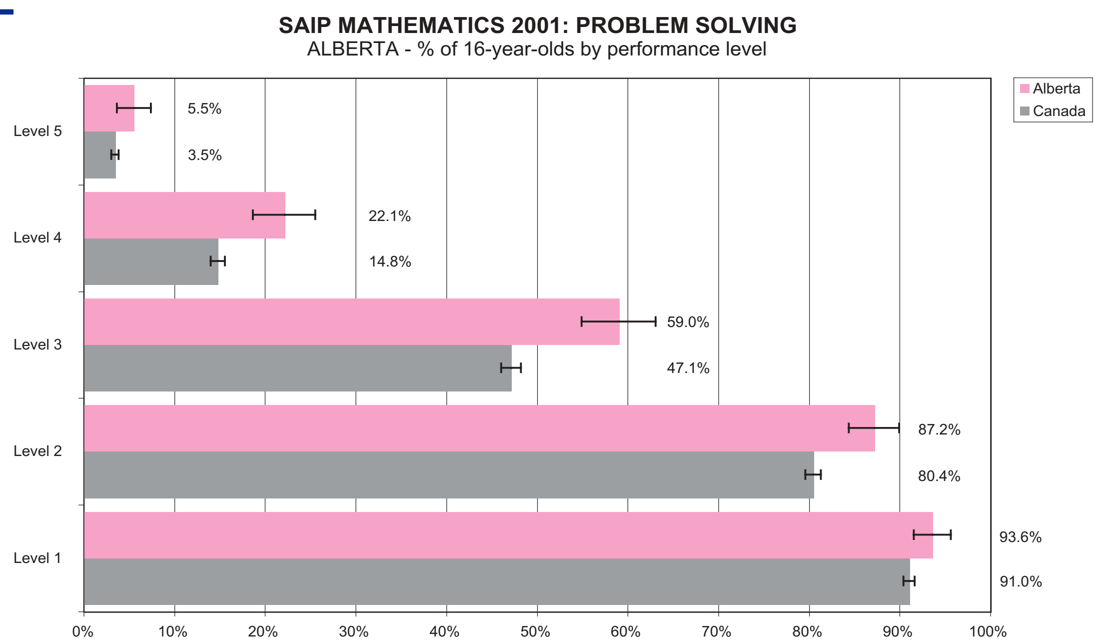


CHART AB4



Context Statement

Social Context

Saskatchewan has a population of approximately 1 million spread throughout a vast geographic area. Although the province still retains a predominantly rural character, over the past 25 years the balance of the population has shifted from living mostly in towns, villages, and rural municipalities to almost 60% living in the 12 largest communities in the province. Saskatchewan has a diverse cultural and ethnic heritage, including a large and growing First Nations population who live either on reserves or in urban centres. The Métis population is also thriving in rural and urban Saskatchewan. Agriculture, potash and uranium mining, oil production, forestry, and the service sector are the major industries.

Organization of the School System

Saskatchewan has approximately 184,000 students in kindergarten to grade 12 classrooms in its 789 provincially funded schools.

Mathematics Teaching

Over the past decade, the province has devoted considerable effort to reforming its curricula. Specifically in mathematics, new courses consistent with the *Curriculum and Evaluation Standards for School Mathematics* (National Council of Teachers of Mathematics, 1989) have been designed and are at various stages of implementation across the elementary, middle, and secondary levels. Saskatchewan has participated in the Western Canadian Protocol developing a common curriculum framework in mathematics. Saskatchewan's current curriculum alignment with this framework is 85% or greater.

The aim of the mathematics program in Saskatchewan is to graduate individuals who value mathematics and appreciate its role in society. The program seeks to actively engage students in exploring, communicating, and extending mathematical concepts through the use of manipulatives, technology that includes calculators and computers, and cooperative learning experiences. Students experience mathematics through various strands: measurement, data management analysis, consumer issues and problems, numbers and operations, geometry, algebra, equations, functions, and trigonometry. Introduction to the learning and application of these mathematics concepts and skills occurs best in the context of solving problems relevant to students' life experiences.

Experiencing broad-based mathematics through exploration and interaction in interesting and relevant situations provides all students with the mathematical preparation essential to

- develop the skills and knowledge of concepts necessary to meet the needs of the average worker and consumer
- develop the ability to analyze and interpret quantitative information as informed citizens
- develop logical thinking skills, effective work habits, and an appreciation for mathematics
- develop the desire, confidence, and ability to solve problems
- communicate mathematically
- pursue further studies in mathematics and mathematically related areas

Mathematics Assessment

Classroom teachers in Saskatchewan are responsible for assessment, evaluation, and promotion of students from kindergarten through grade 11. At the grade 12 level, teachers are responsible for assigning at least 60% of each student's final mark, and those teachers accredited in mathematics are responsible for assigning 100% of the grade 12 final mark.

Students are assessed on the full range of knowledge, understandings, skills, attitudes, and values they have been using and developing during instruction. Teachers are encouraged to develop diversified evaluation plans that reflect the various instructional methods they use in adapting instruction to each class and each student.

During 1995, 1997, and 2001, student learning in mathematics was assessed provincially at grades 5, 8, and 11. Randomly selected schools participated in either a written component or a performance-based component of the assessment. The results of these assessments are interpreted against provincial standards to provide information on how well the students in the province are performing in mathematics.

Results for Saskatchewan

Mathematics Content

There are significant differences between the achievement of Saskatchewan students of both age groups and Canada as a whole, except at levels 1 and 2 for 16-year-old students and at level 5 for 13-year-olds.

There were few significant changes in achievement in mathematics content for Saskatchewan students between the 1997 assessment and that of 2001. Fewer 13-year-old Saskatchewan students reached level 1 in the 2001 assessment.

CHART SK1

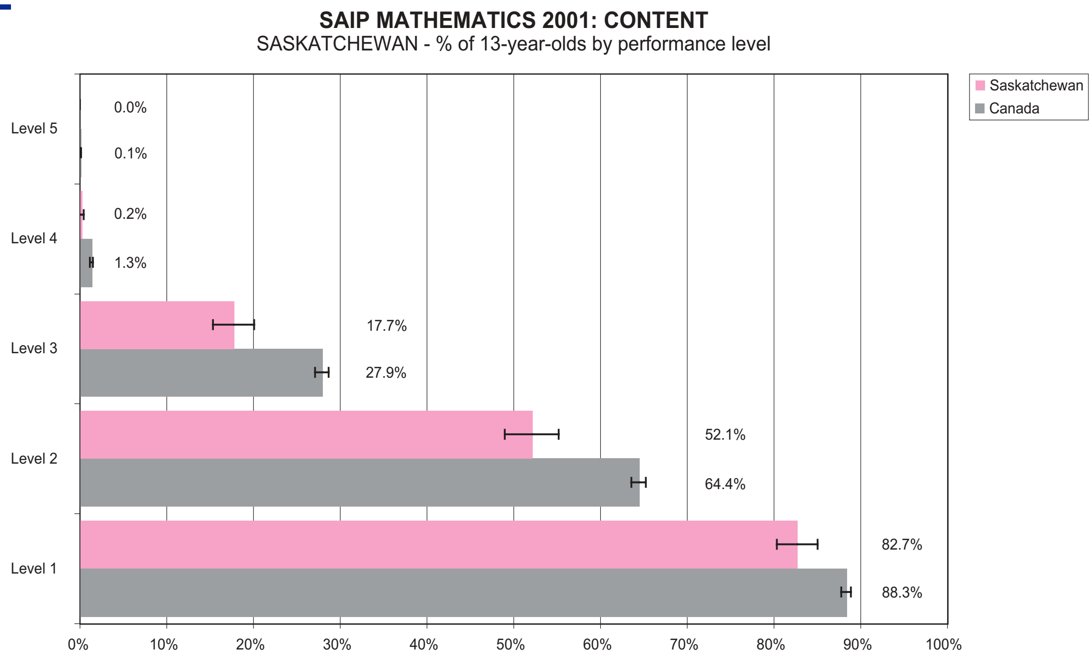
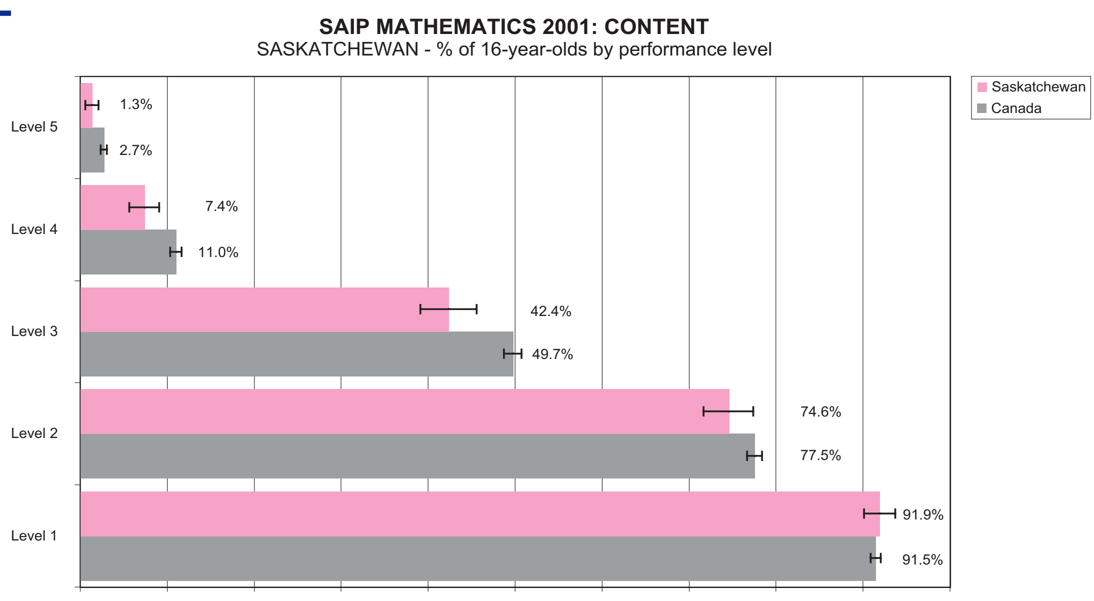


CHART SK2



Problem Solving

There are significant differences between the achievement of Saskatchewan 13-year-old students and Canada as a whole, at all levels. In general, Saskatchewan 16-year-old students performed as well as the Canadian average, except at Level 4.

In comparison with the results of the 1997 assessment, there was a significant increase in the number of students in both age groups in the 2001 assessment achieving levels 2 and 3.

CHART SK3

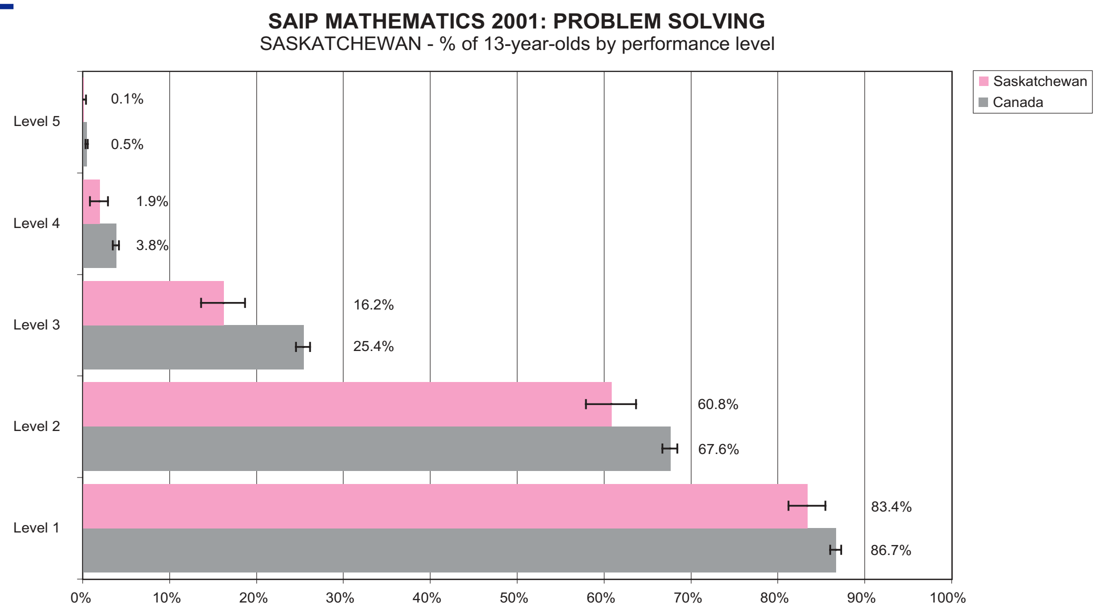
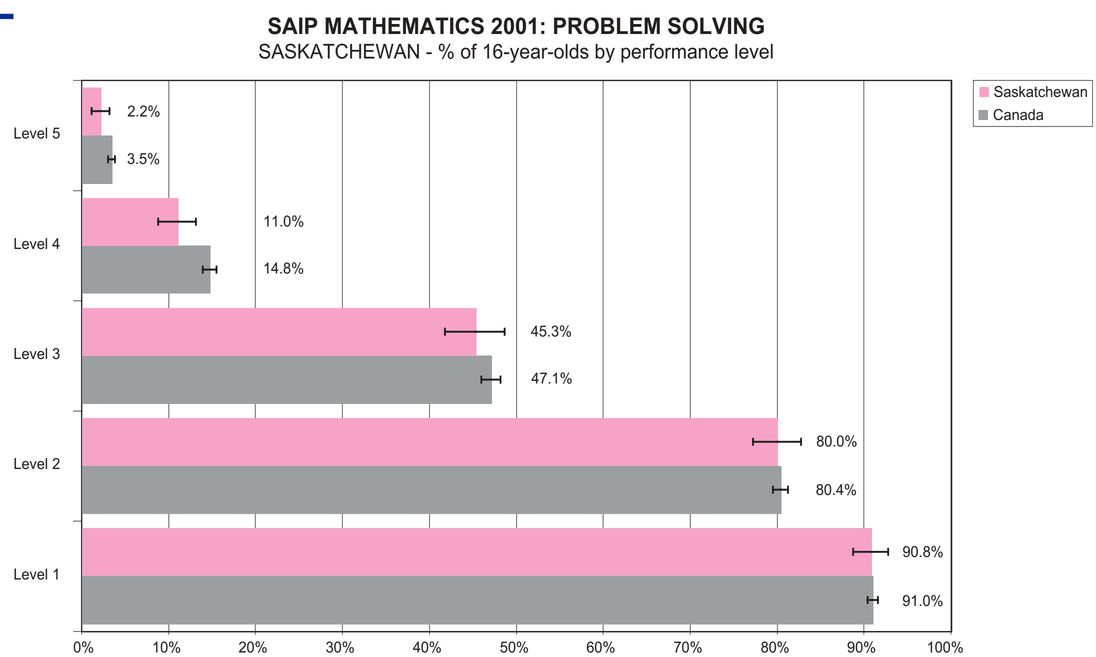


CHART SK4



Context Statement

Social Context

Manitoba has a population of approximately 1 million, 60% of whom reside in the capital city of Winnipeg. Manitoba must meet the educational needs of a wide range of ethnic and cultural groups. English-as-a-second-language (ESL) instruction is provided for immigrant students. There is a strong Franco-Manitoban community in the province, with students enrolled in the Français program. The French Immersion program has become an option for about 9% of students. In addition, there is a notable representation of the Aboriginal community in public schools in urban and rural/remote regions of the province. Manitoba has a broad and diverse economic base.

Organization of the School System

Manitoba's school system enrols over 200,000 students in kindergarten to senior 4 (grade 12). It employs about 13,500 teachers in 46 school divisions and 8 districts. For program delivery purposes, schools are encouraged to group grades according to early years (kindergarten to grade 4), middle years (grades 5 to 8), and senior years (senior 1 to 4). Students may choose courses from four school programs — an English Program, Français Program, French Immersion Program, and a senior year Technology Education Program. The students selected to participate in the SAIP Mathematics Assessment were either 13 or 16 years of age. Most 13-year-old students were in grade 8 or grade 9 (senior 1), and most 16-year-old students were in senior 3 or senior 4.

Mathematics Teaching

In 1995, as part of the Western Canadian Protocol for Collaboration in Basic Education, Manitoba with the other western provinces and territories, developed the document *The Common Curriculum Framework for K–12 Mathematics*. This initiative led Manitoba Education, Training and Youth to publish revised curriculum documents for kindergarten to senior 4 (grade 12) in mathematics. General and specific learning outcomes describe the mathematical knowledge and skills that students are expected to learn at each grade level. Implementation of revised mathematics curricula has been ongoing, beginning with kindergarten to grade 4 in the 1995–96 school year. The current cycle of revision was completed in 2000, with the implementation of senior 4 curricula.

Mathematics Assessment

From 1979 to 1994, Manitoba Education, Training and Youth administered a provincial curriculum assessment program in major subject areas at early, middle, and senior years. This program was suspended in 1994. The senior 4 Provincial Examinations in Mathematics and English and French Language Arts were introduced in 1996 for all senior 4 students. The Senior 1 Mathematics Standards Test was introduced in 1999. This standards test is currently optional for school divisions.

The Senior 4 Provincial Examinations will be replaced by the Senior 4 Standards Tests in Mathematics and English and French Language Arts in the 2001–02 school year.

For the SAIP Mathematics Assessment, students were tested in their language of instruction.

Results for Manitoba (English)

Mathematics Content

Manitoba 16-year-old students who responded in English performed as well as Canadian students as a whole at all levels. However, there are significant differences between the achievement of Manitoba English-language 13-year-old students and Canada as a whole, except at level 5.

There were no changes in achievement for Manitoba English-language 13-year-old students between the 1997 assessment and that of 2001. Fewer 16-year-old Manitoba English-language students performed at level 1 in the 2001 assessment.

CHART MB(E)1

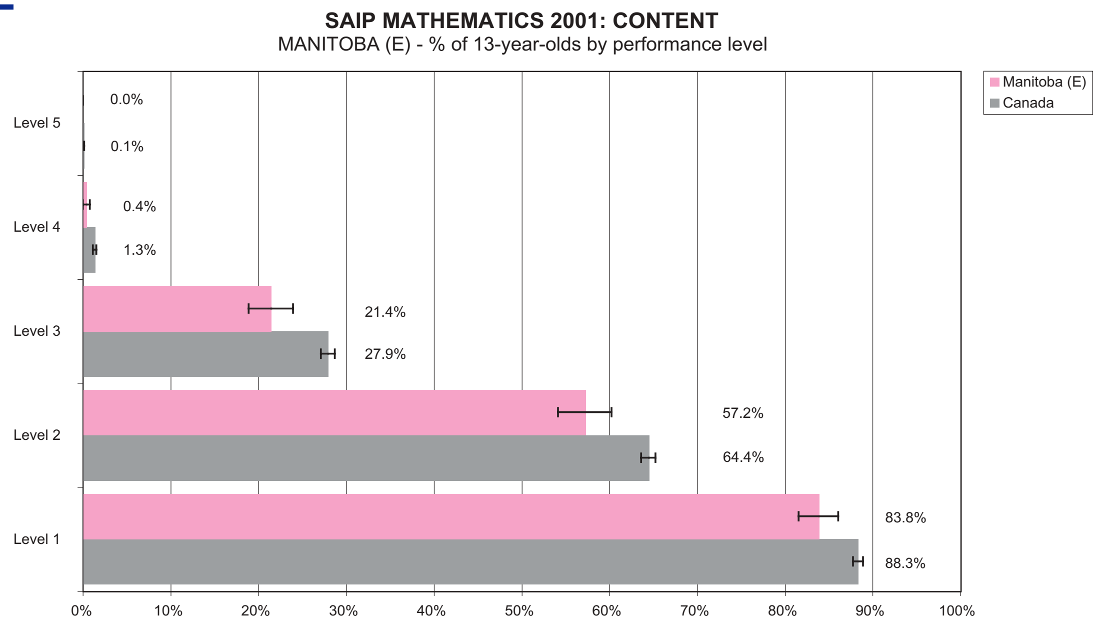
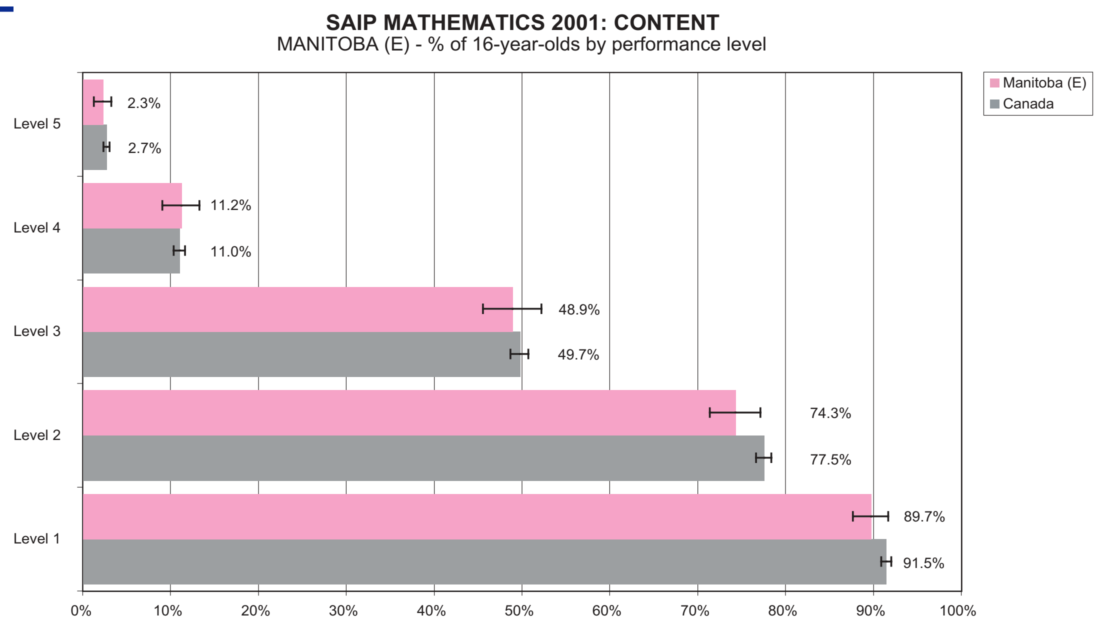


CHART MB(E)2



Problem Solving

There are significant differences between the achievement of Manitoba 13-year-old students who responded in English and Canada as a whole, except at levels 4 and 5. In general, Manitoba 16-year-old students who responded in English performed as well as the Canadian average at levels 1 to 4, and better than the Canadian average at level 5.

In comparison with the results of the 1997 assessment, there was a significant increase in the number of 13-year-olds in the 2001 assessment achieving levels 2 and 3. More 16-year-old students performed at levels 3, 4, and 5 as well in 2001.

CHART MB(E)3

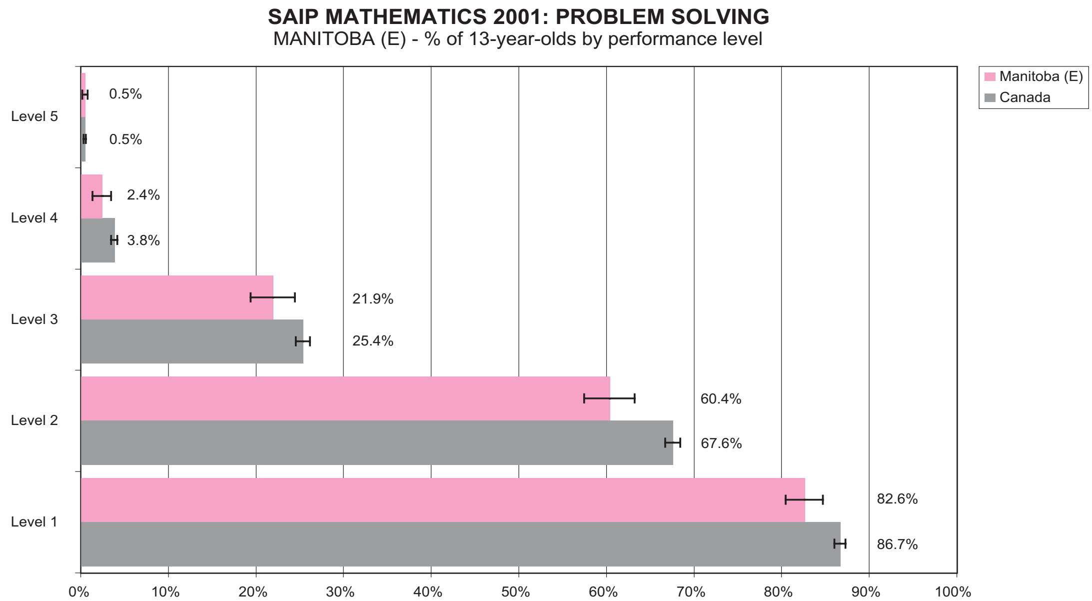
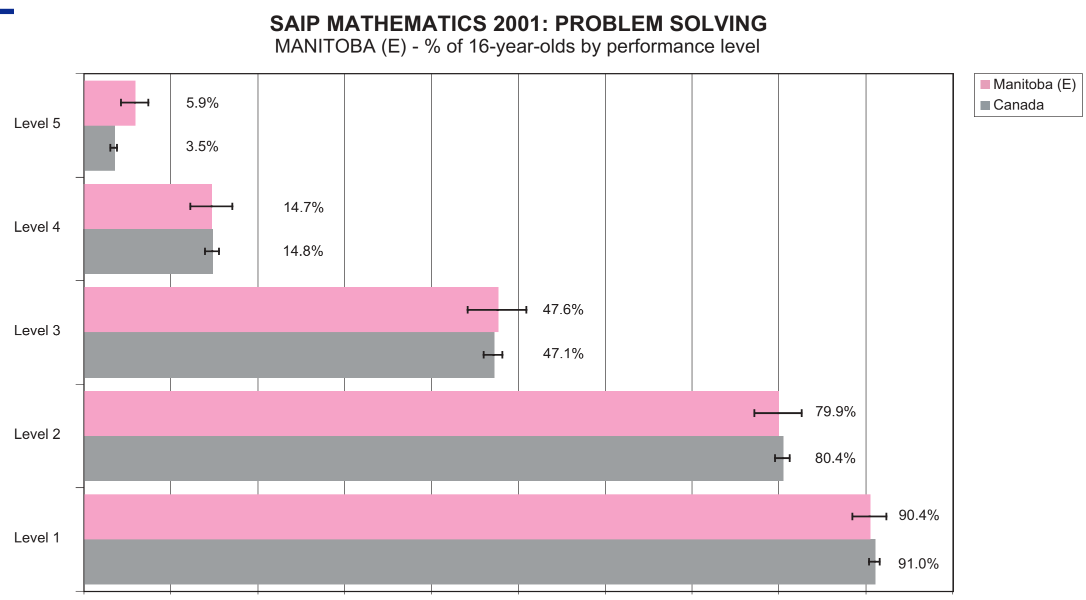


CHART MB(E)4



Results for Manitoba (French)

Mathematics Content

Manitoba 16-year-old students who responded in French performed significantly better than Canada as a whole at levels 1, 2, and 3, and as well as Canada at levels 4 and 5. There are significant differences between the achievement of Manitoba French-language 13-year-old students and Canada as a whole at levels 2 and 4. At other levels, these students performed as well as Canadian students as a whole.

There were no changes in achievement for Manitoba French-language 16-year-old students between the 1997 assessment and that of 2001. Fewer 13-year-old Manitoba French-language students performed at level 3 in the 2001 assessment.

CHART MB(F)1

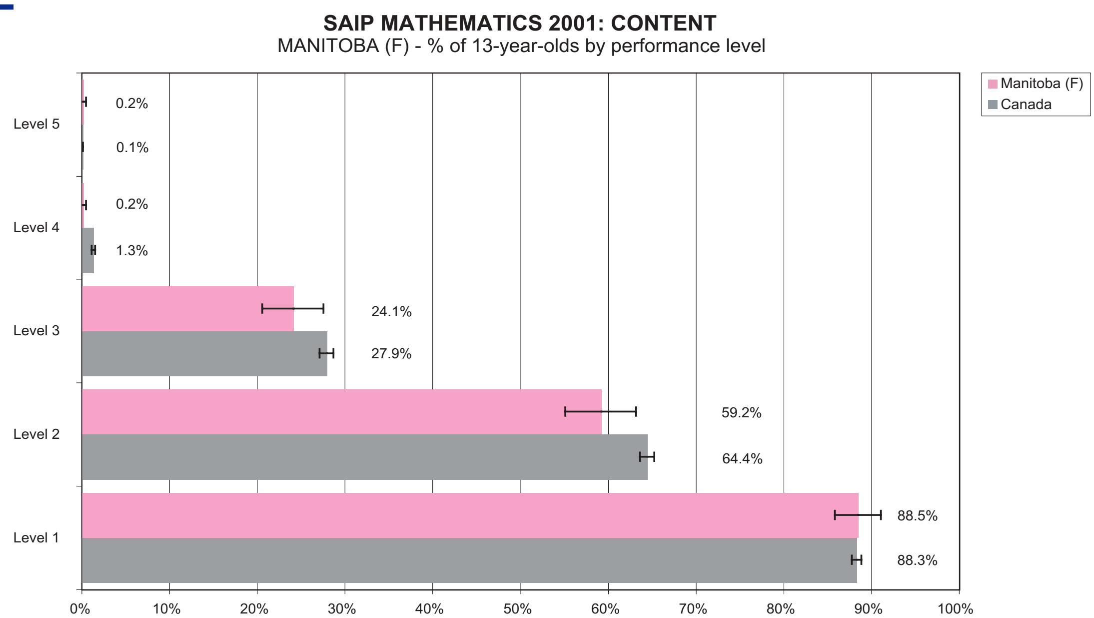
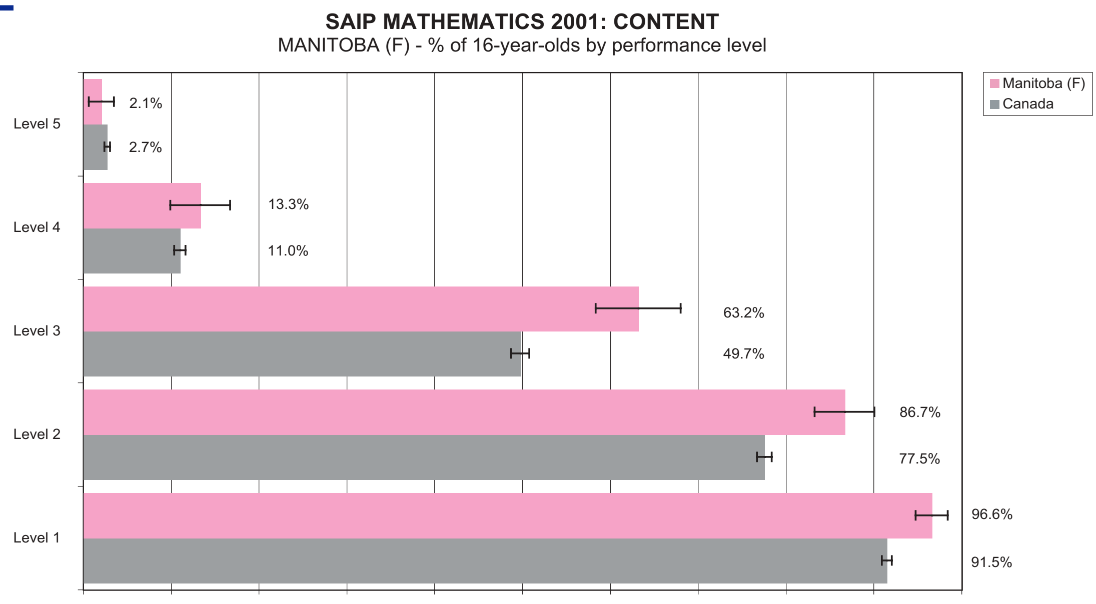


CHART MB(F)2

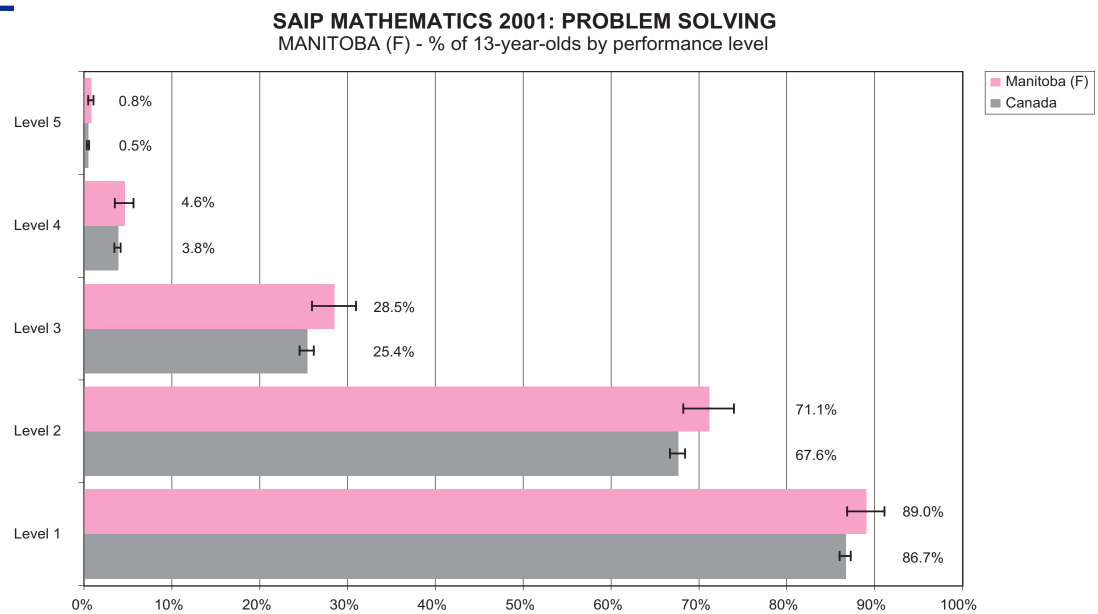


Problem Solving

Manitoba 16-year-old students who responded in French performed better than the Canadian average at levels 1, 2, and 3, and as well as Canada overall at levels 4 and 5. There are no significant differences between the achievement of Manitoba 13-year-old students who responded in French and that of Canada as a whole.

In comparison with the results of the 1997 assessment, there were significant increases in the number of students in both age groups in the 2001 assessment achieving levels 2, 3, and 4. More 16-year-old students performed at level 5 as well in 2001.

CHART MB(F)3



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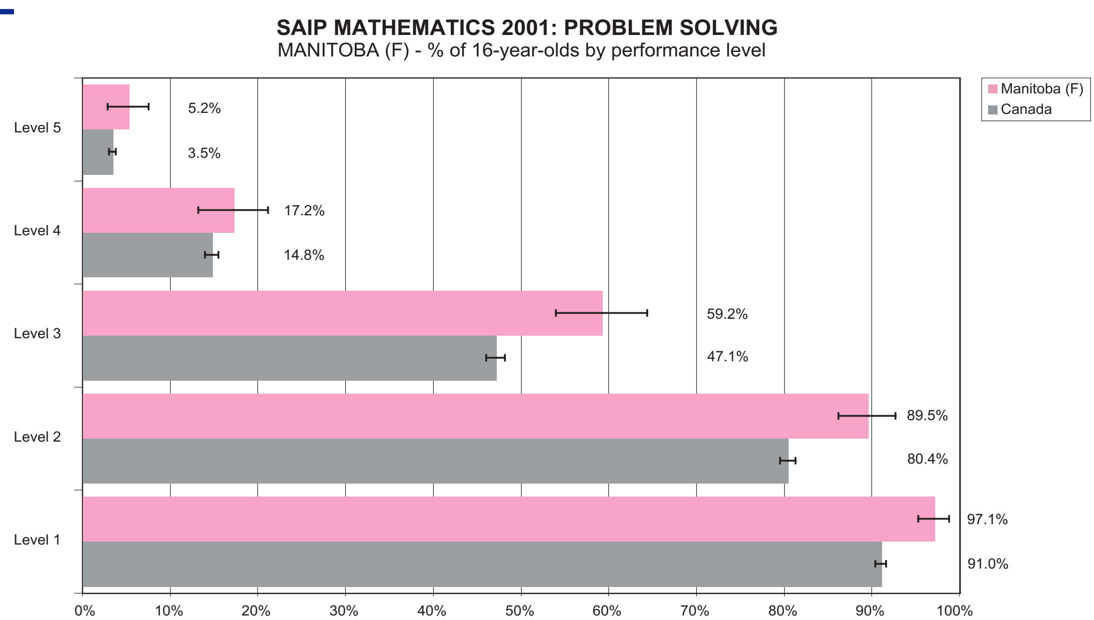


Context Statement

Social Context

In 2001, Ontario had a population of approximately 11,874,400. A critical issue in the provision of education programs and services is the diverse ethnocultural composition of Ontario's student population and the large number of children and youth from immigrant families. Through immigration, Ontario receives approximately 68% of Canada's newcomers. To overcome language and cultural barriers that could affect student achievement, English-language boards and schools (especially in urban areas) have to provide instruction in English and French as second languages.

On the other hand, French-language schools offer awareness and upgrading programs in French as well as a beginners' English program. Finally, all school boards provide community programs and services through partnerships between the school and the community.

Ontario is characterized by a range of boards, from large urban school boards that serve densely populated communities, to northern district school boards that serve small numbers of students spread over wide geographic areas. The school board system is made up of 60 English-language boards, 12 French-language boards, and 37 school authorities that are responsible for schools in small and remote communities.

Organization of the School System

Ontario has two types of publicly funded school boards: public boards, which enrol approximately 70% of the student population, and Catholic boards, which enrol the other 30% of the student population. Of the 5% of students enrolled in French-language school programs, about 80% are in Catholic schools.

In 1999–2000, Ontario had 1,427,358 students enrolled in 3,970 elementary schools and 704,268 students enrolled in 820 secondary schools. There were approximately 118,408 full-time teachers. The school program can extend from junior kindergarten (age 4) to the Ontario Academic Courses (OACs), usually taken in the final year of secondary school, which are designed to prepare students for postsecondary education and the workplace. Students who entered grade 9 in the fall of 1999 have been following the new curriculum developed for the four-year secondary program.

Mathematics Teaching

Ontario has developed new expectations-based curriculum and criterion-based assessment policies in every subject from grade 1 through grade 12. The mathematics expectations and achievement charts are included in *The Ontario Curriculum, Grades 1–8: Mathematics, 1997*; *The Ontario Curriculum, Grades 9 and 10: Mathematics, 1999*; and *The Ontario Curriculum, Grades 11 and 12: Mathematics, 2000*.

The mathematics courses from grades 1 to 8 are developed in five strands: number sense and numeration; measurement; geometry and spatial sense; patterning and algebra; and data management and probability. Teachers prepare student reports on at least two of these strands at each reporting period and report on each strand at least twice during the year.

The new curriculum for grades 9–12 mathematics courses was also developed in strands, but these strands vary from course to course. Expectations in some strands are intended to be addressed throughout the course, while other expectations may be the focus of work for only part of the course. Student achievement is reported as a percentage score at each reporting period.

The achievement charts for grades 9–10 and 11–12 require teachers to assess/evaluate/report on student achievement in four categories: knowledge and understanding; thinking, inquiry, and problem solving; communication; and application.

A requirement for graduation is that students earn three credits in mathematics, at least one of those in grade 11 or grade 12. Students in grade 9 may select courses of two types — academic or applied. In grade 10, it is possible for a student to then cross over and take courses of another type. In grade 11, destination-labelled courses are offered for mathematics as university, university/college, college, or workplace. Grade 12 destination-labelled mathematics courses are university, college, or workplace.

Mathematics Testing

Classroom teachers are responsible for classroom evaluation and promotion to the next grade level; Ontario does not conduct province-wide examinations for these purposes. The Education Quality and Accountability Office (EQAO) was established in 1995 to ensure greater accountability and to contribute to the enhancement of education in Ontario. The EQAO now conducts annual assessments for reading, writing, and mathematics in grades 3 and 6, for mathematics in grade 9, and for literacy in grade 10. Students must pass the grade 10 literacy test to obtain a graduation diploma. These provincial assessments are based on the expectations outlined in *The Ontario Curriculum*.

With respect to the mathematics program, Ontario has a history of involvement in international assessments, such as those conducted by the International Association for the Evaluation of Educational Achievement (IEA) and, more recently, the Organisation for Economic Co-operation and Development (OECD).

In the SAIP Mathematics III Assessment (2001), most 13-year-old students were enrolled in either grade 8 or grade 9 mathematics, both of which are mandatory core subjects in the new curriculum. However, the mathematics experiences of the 16-year-old students would have been more varied. Most of the 16-year-old students in the assessment would have been studying the old mathematics curriculum and taking a grade 11 course at one of the three possible levels of difficulty or would have taken no mathematics course since grade 10. Some of the 16-year-old students may have begun the new curriculum in September 1999.

Results for Ontario (English)

Mathematics Content

Ontario students from both age groups who responded in English performed as well as Canadian students as a whole at all levels of achievement.

In the 2001 assessment, more Ontario English-language 13-year-old students performed at levels 2 and 3 than in 1997. There were no significant changes in the performance of 16-year-old Ontario English-language students between the 1997 assessment and that of 2001.

CHART ON(E)1

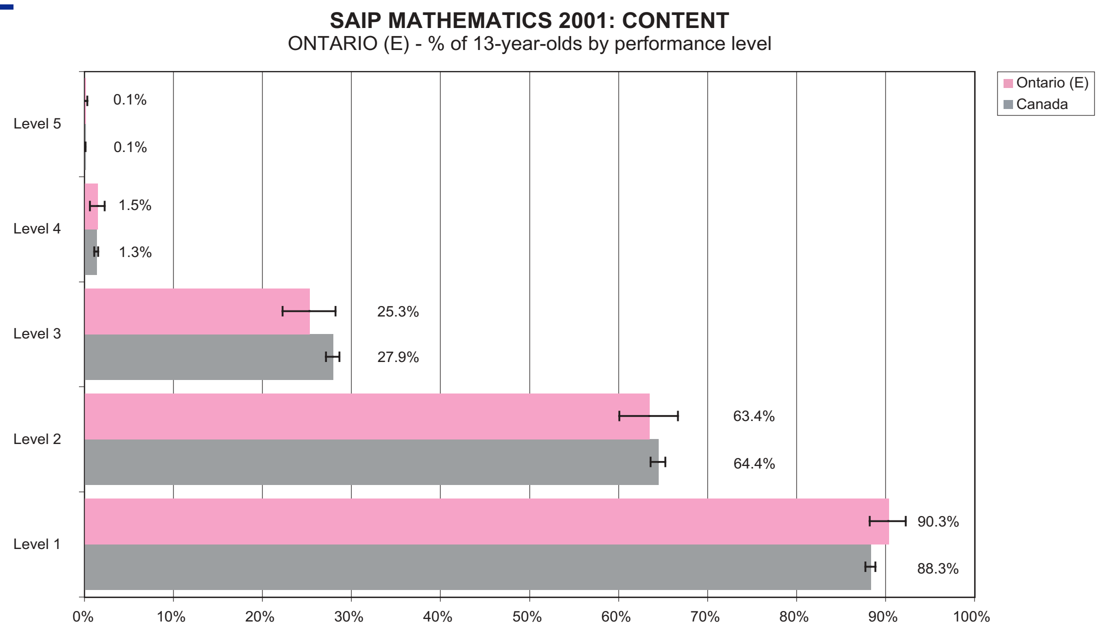
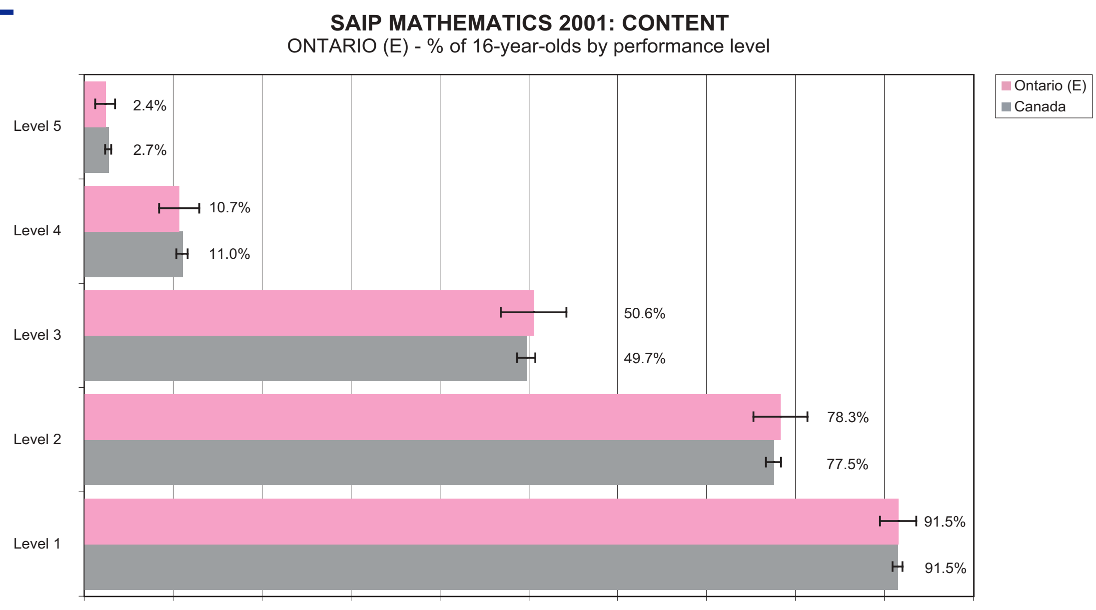


CHART ON(E)2



Problem Solving

Ontario students from both age groups who responded in English performed as well as Canadian students as a whole at all levels of achievement.

In the 2001 assessment, more Ontario English-language 13-year-old students performed at levels 1, 2, 3, and 4 than in 1997. More 16-year-old Ontario English-language students achieved at levels 2, 3, and 4 than in the 1997 assessment.

CHART ON(E)3

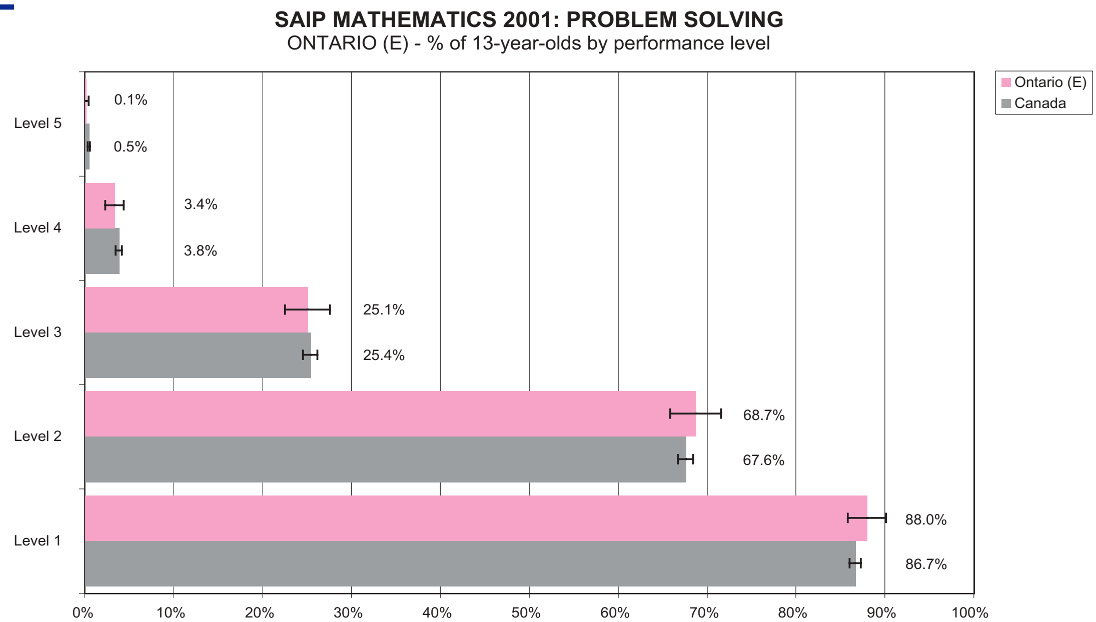
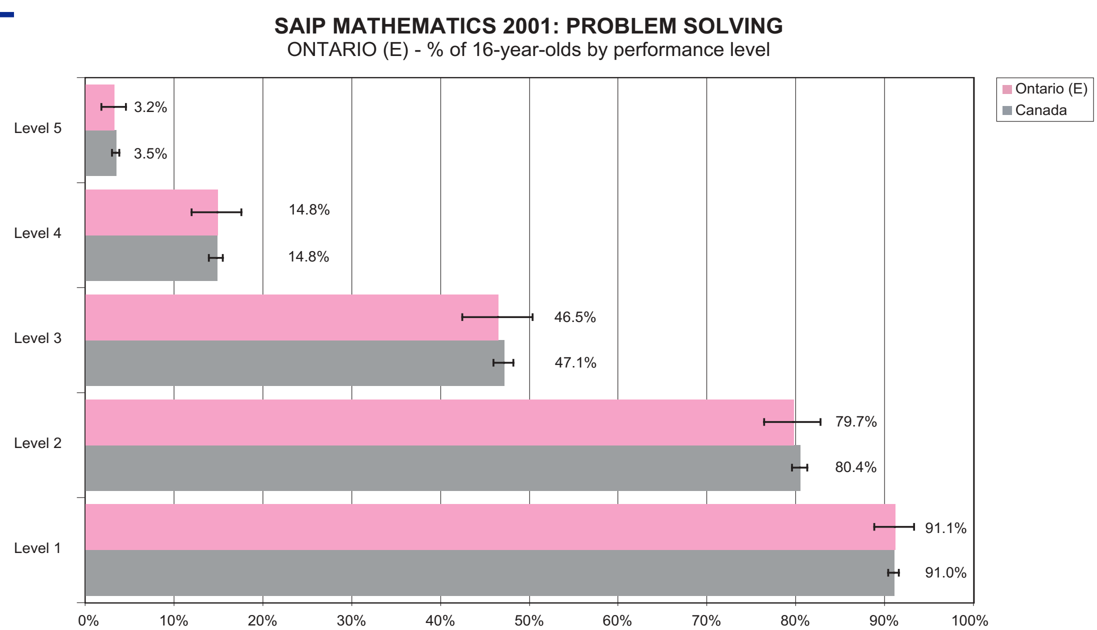


CHART ON(E)4



Results for Ontario (French)

Mathematics Content

Ontario 13-year-old students who responded in French performed as well as Canadian students as a whole, except at level 2. Ontario 16-year-old students who responded in French performed as well as Canadian students as a whole at levels 1 and 2, but there were significant differences at the other levels of achievement.

In the 2001 assessment, fewer Ontario French-language 13-year-old students performed at level 1; otherwise, there were no significant changes between the 1997 and 2001 assessments. Similarly for 16-year-old Ontario French-language students, fewer performed at levels 1 and 3 than in the 1997 assessment.

CHART ON(F)1

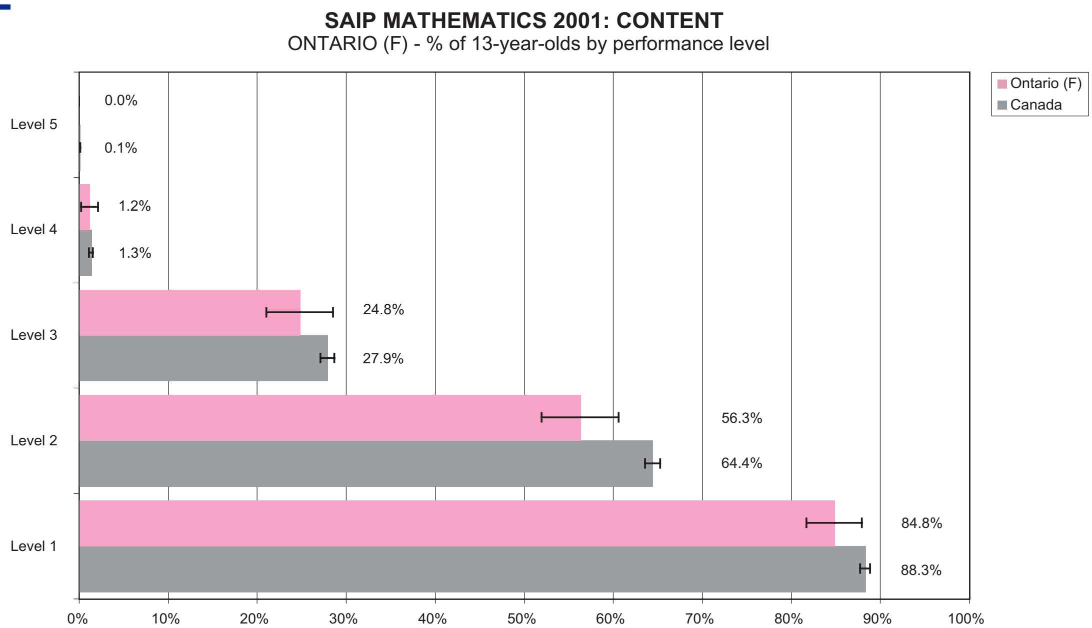
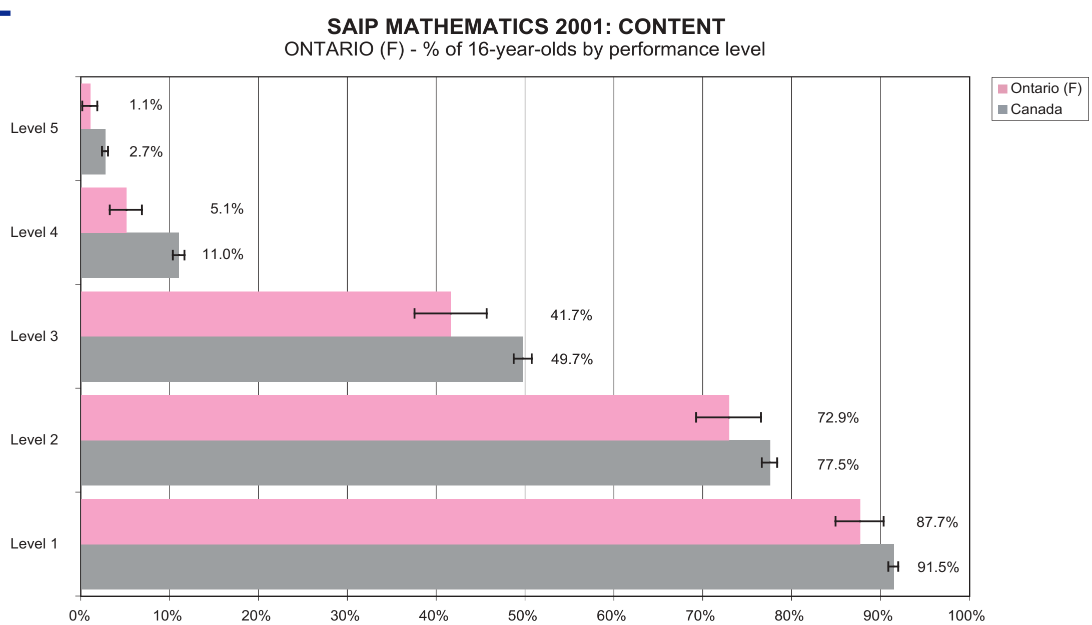


CHART ON(F)2



Problem Solving

Ontario 13-year-old students who responded in French performed as well as Canadian students as a whole. For Ontario 16-year-old students who responded in French, there were significant differences at all levels of achievement except level 5.

In the 2001 assessment, more Ontario French-language 13-year-old students performed at levels 1, 2, and 3 than in the 1997 assessment. For 16-year-old Ontario French-language students, more performed at levels 3 and 5, with fewer at level 1 than in the 1997 assessment.

CHART ON(F)3

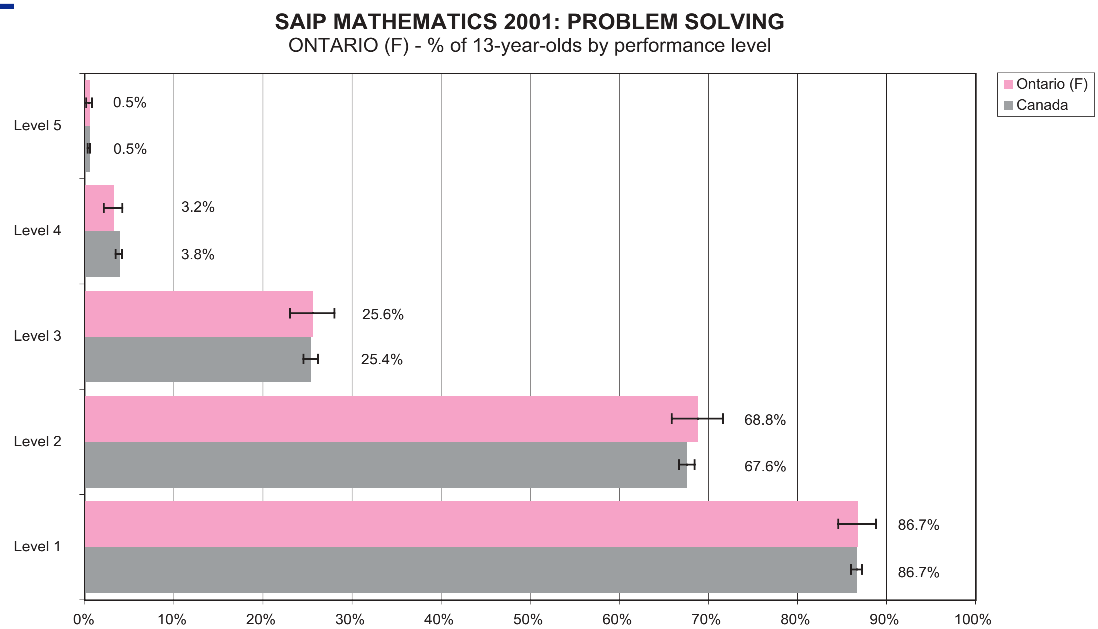
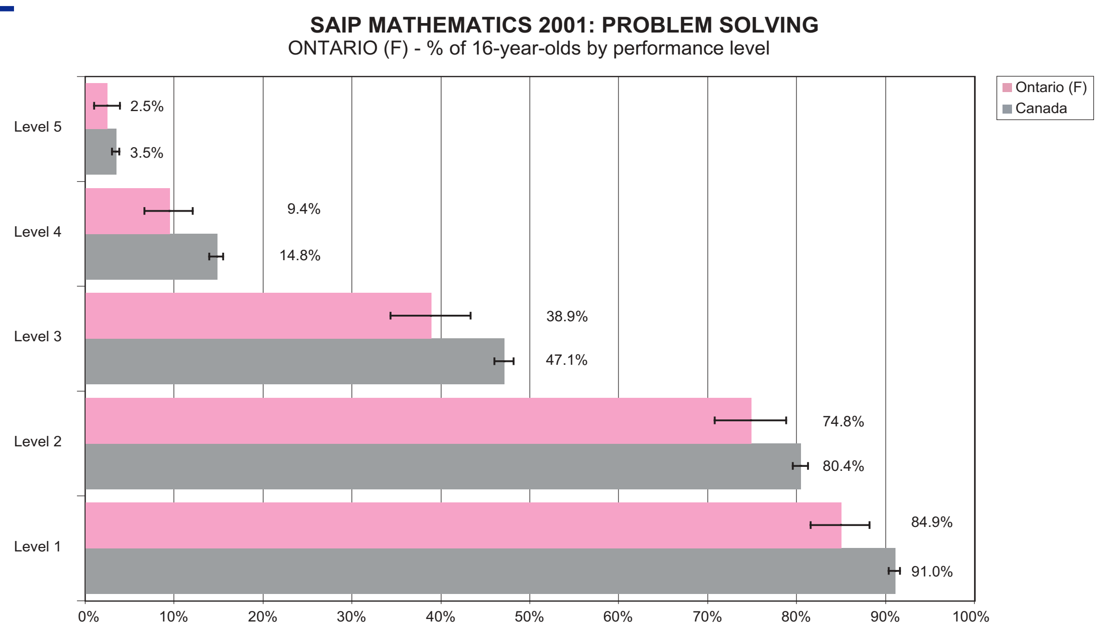


CHART ON(F)4



Context Statement

Social Context

For some years now, Quebec has been modernizing its education system in order to meet the requirements of today's society. The current education reform is the result of a democratic process. The Estates General on Education, initiated in 1995, were structured to involve people throughout Quebec in consultations on the problems in the education system, on the measures needed to remedy these problems, and on medium- and long-term adjustments required to ensure that the system adapts to the socioeconomic and sociocultural changes that are emerging at the dawn of the 21st century.

Quebec's population of over 7 million is concentrated in the south of the province, mostly in its largest city, Montreal, and its capital, Quebec. The official language of Quebec is French. Francophones account for 80% of Quebec's total population. Anglophones make up about 9% and have access to a system of English educational institutions from preschool to university. There are 11 Native peoples in Quebec: 8 under federal jurisdiction and 3 under the jurisdiction of the Quebec Ministry of Education. Funding for education is provided by both levels of government.

In addition, an increase in immigration, especially in the Greater Montreal area, has resulted in a massive inflow of students whose mother tongue is neither French nor English. These students attend French schools. Fully aware of the needs of this new client group, schools have implemented special measures, including initiation and francization programs and welcoming classes.

Organization of the School System

Quebec has four levels of education: elementary, secondary, college, and university. Children are admitted to elementary school at 6 years of age, and school attendance is compulsory until the age of 16. The official language of instruction at the elementary and secondary levels is French. Education in English is available mainly to students whose father or mother pursued elementary studies in English in Canada. Approximately 10% of Quebec students are educated in English.

Elementary school is usually preceded by one year of full-time kindergarten for five-year-olds. Almost all five-year-olds attend kindergarten, even though it is not compulsory. Some children from underprivileged backgrounds may have access to half-day kindergarten from the age of 4.

Elementary school lasts six years. The school year is made up of 180 days of classroom teaching. A normal school week consists of five full days and 23.5 hours of teaching. Students who experience learning difficulties or who have behavioural problems or minor disabilities are integrated into regular classrooms. Those with more significant problems attend special classes with fewer students.

Secondary school lasts five years and is divided into two levels. The school week is made up of five days and must include a minimum of 25 hours of educational activities. The first level or "cycle" (years 1 to 3) focuses on basic education. In the second cycle (years 4 and 5), students continue their general education, but also take optional courses to explore other avenues of learning before going on to college. In year 4, students can also undertake a two- or three-year vocational course of studies to prepare for a trade. Requirements for the secondary and vocational school diplomas are set in the basic school regulation.

At age 13, most students are in the second year of secondary school. At age 16, most are completing the fifth year of secondary school; some are starting their college studies.

In 2000–01, a total of 1,015,356 students were registered in Quebec's 2,892 public and private elementary and secondary schools, run by 72 schools boards, and 338 private schools.

Mathematics Teaching

In Quebec, mathematics is a compulsory subject from the beginning of elementary school to the fourth year of secondary school inclusive. In the second cycle of secondary school (starting in year 4), students can choose to enrol in one of three mathematics streams: basic, intermediate, or advanced, the latter being a prerequisite for college-level scientific courses. Mathematics has been a prerequisite for college admission since September 1996.

The Ministry of Education determines curriculum content in close collaboration with groups of experts in the various subjects, curriculum developers, teachers, and school board consultants. The mathematics curriculum is designed to provide all students with both knowledge and know-how, including mastery of content, application, and problem solving, while promoting the development of cross-curricular skills, such as linking concepts, communicating, managing a problem, and reasoning.

MATHEMATICS – SECONDARY *First Cycle*	*Recommended Time*
Mathematics 116	150 hours/year
Mathematics 216	150 hours/year
Mathematics 314	100 hours/year

MATHEMATICS – SECONDARY *Second Cycle, Basic Stream*	*Recommended Time*
Mathematics 416	150 hours/year
Mathematics 514	100 hours/year

MATHEMATICS – SECONDARY *Second Cycle, Intermediate Stream*	*Recommended Time*
Mathematics 426	150 hours/year
Mathematics 526	150 hours/year

MATHEMATICS – SECONDARY *Second Cycle, Advanced Stream*	*Recommended Time*
Mathematics 436	150 hours/year
Mathematics 536	150 hours/year

Mathematics Testing

Schools assess students' progress in mathematics regularly throughout their secondary studies, using ministry- or locally developed tests. Ministry tests are mixed (i.e., they include multiple-choice, short-answer, and essay-type questions). Students may use a scientific or graphing calculator during tests.

As for other subjects, the pass mark is 60%. School-based assessments make up one-half of the final mark, and the student's mark on the uniform examination set by the Ministry of Education, the other half.

Results for Quebec (English)

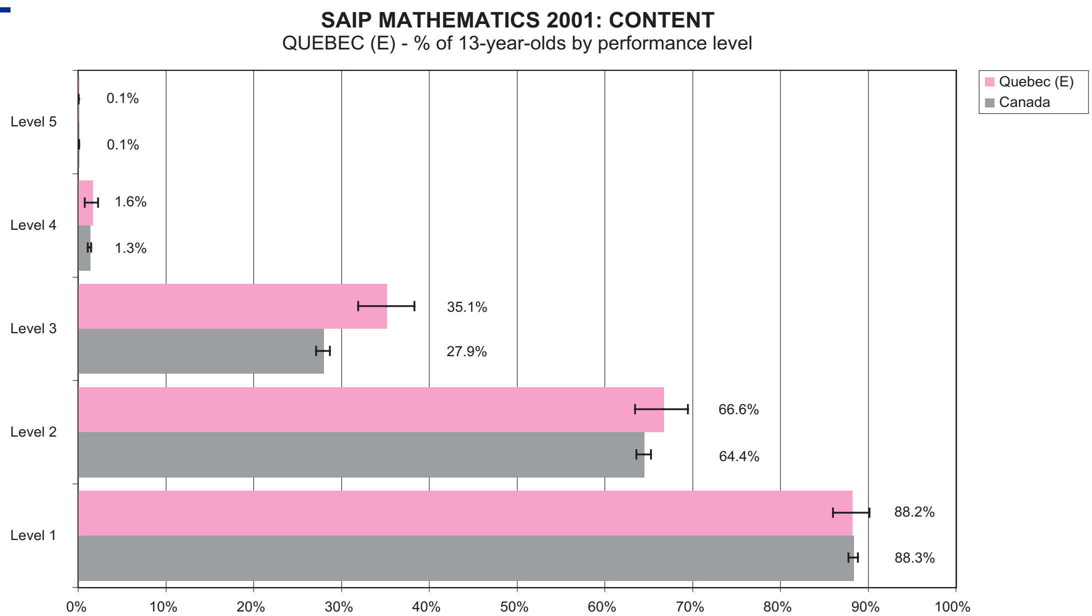
NOTE: Only 13-year-old Quebec students took part in the 2001 assessment.

Mathematics Content

Quebec 13-year-old students who responded to the assessment in English performed better than Canada as a whole at level 3. At other levels they performed as well as the Canadian average.

In the 2001 assessment, fewer of these students reached level 3 than in 1997. Otherwise, there were no significant changes.

CHART QC(E)1

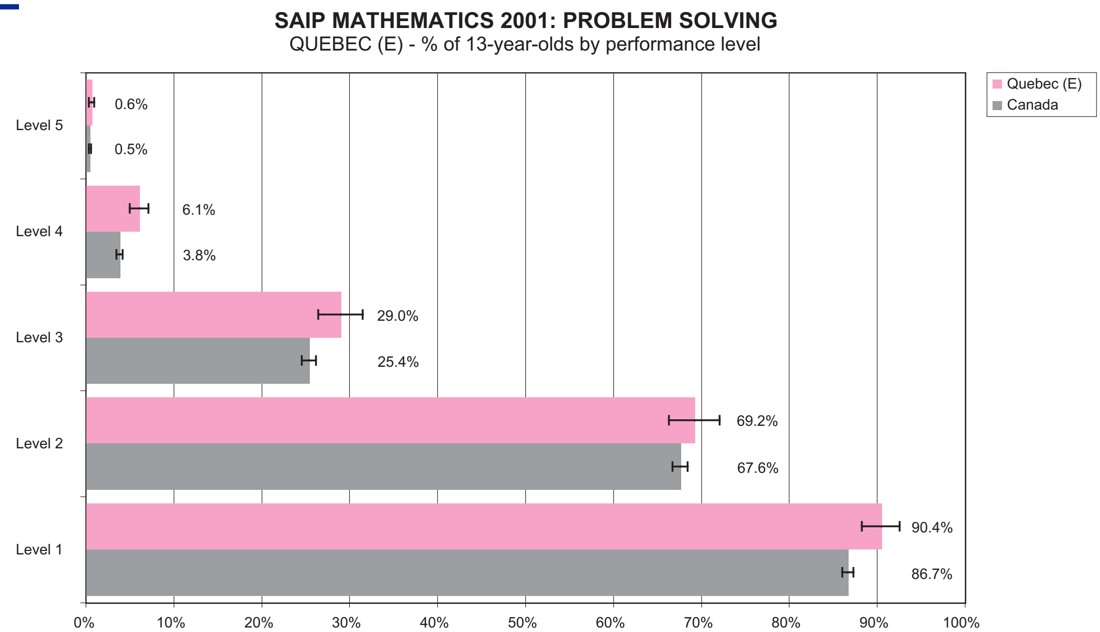


Problem Solving

Quebec 13-year-old students who responded to the assessment in English performed as well as or better than Canada as a whole. At levels 1 and 4 they performed better than the Canadian average.

Since the 1997 assessment, the performance of Quebec English-language students has improved significantly at levels 1, 2, 3, and 4.

CHART QC(E)2



Results for Quebec (French)

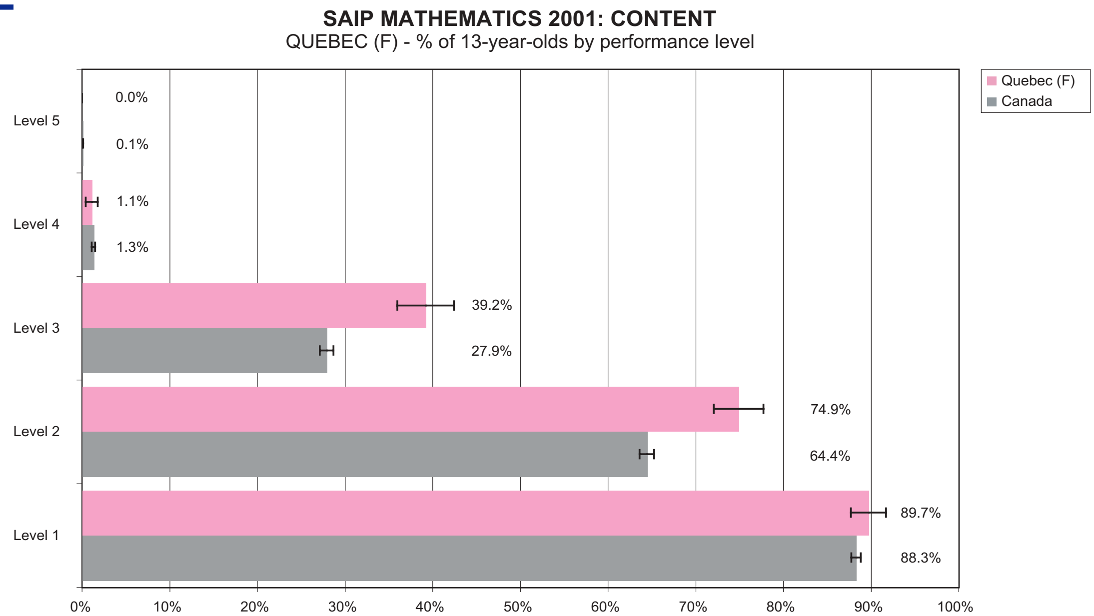
NOTE: Only 13-year-old Quebec students took part in the 2001 assessment.

Mathematics Content

Quebec 13-year-old students who responded to the assessment in French performed better than Canada as a whole at levels 2 and 3. At other levels they performed as well as the Canadian average.

In the 2001 assessment, slightly fewer of these students achieved at level 3 than in 1997, with no significant changes at the other levels.

CHART QC(F)1

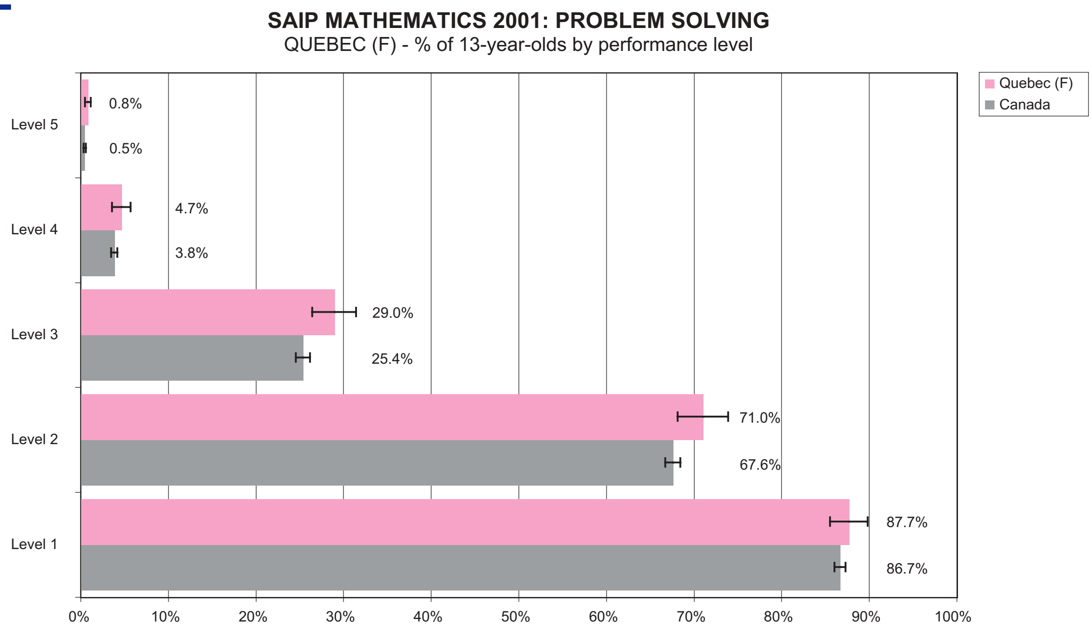


Problem Solving

Quebec 13-year-old students who responded to the assessment in French performed as well as Canada as a whole at all levels.

The performance of these Quebec French-language students has not changed significantly since 1997.

CHART QC(F)2



Context Statement

Social Context

New Brunswick's population as of July 1, 2001, was 757,077. Serving Canada's only officially bilingual province, the New Brunswick public education system plays an important role in offering students the opportunity to learn in both French and English. The province's dual system provides a full curriculum and services in both official languages.

The Department of Education has made a considerable effort to develop a school system that will meet the needs of all students. It has put in place programs to reduce school-leaving by identifying potential dropouts, to enable physically challenged students to attend school, and to facilitate the integration into the school system of as many students as possible. As a result, the province has high rates of retention (students who stay in school) within an education system that is committed to the principles of inclusion for students with special needs.

Organization of the School System

Since 1967, the provincial government has had sole responsibility for financing public schools and is committed to equal opportunity for all students. The minister of education has the authority to prescribe curriculum and establishes educational goals and standards.

In 1969, the province of New Brunswick became officially bilingual. In 1974, in recognition of its linguistic duality, the province established two parallel but separate education systems. Each linguistic sector of the Department of Education is responsible for its own curriculum and assessment.

The public education governance structure in New Brunswick has undergone major changes in the past decade. In 1996, school boards were dissolved. Between 1996 and 2001, the province's 18 school district offices (organized in eight administrative units) held responsibility for the operation of the schools. A network of parental governance structures established at the school, district, and provincial levels was responsible for advising on, monitoring, and providing approval for those matters pertaining to the province's educational direction.

The governance structure underwent major reforms in 2001. The number of school districts was reduced to 14 independently administered units — five French and nine English school districts. District Education Councils (DECs) were created, consisting of publicly and locally elected members. DECs are responsible for establishing the direction and priorities for the school district and for making decisions as to how the district and schools are operated. The DECs have broad policy and planning responsibilities and are ultimately responsible to the community for the performance of the schools and for meeting provincial standards.

Kindergarten through grade 12 enrolment for the 2000–01 school year totalled 124,942 (86,555 students in the anglophone sector and 38,387 students in the francophone sector). The starting age for school is 5, and attendance is mandatory until age 18 (increased from 16 as of July 1, 1999). Students attend classes for 187 days per year.

Mathematics Teaching

Mathematics teaching is currently undergoing a significant transition at all levels, with emphasis being placed on "student-active" instruction. Curriculum and instruction are focused on four main areas: mathematical problem solving, mathematical reasoning, communication in mathematics, and mathematical connections. Curriculum and resources are being developed to emphasize the relevance of mathematics and to highlight its relationship to today's technology.

New curriculum and related resources have been implemented throughout the province from K to 10, with extensive professional development being provided to support their implementation. Curriculum development and piloting are under way at grades 11 and 12, with official implementation to take place in the future.

Mathematics Assessment

The Department of Education administers a comprehensive Provincial Evaluation Program to monitor student achievement at particular points in the system. This provides important feedback at provincial, local, and individual levels about the knowledge and skills students are expected to learn.

Currently, annual assessments are administered at grades 3 and 5, testing outcomes identified in the provincial mathematics, science, and language arts curriculum documents. These are designed as program assessments with a focus on reporting group data in terms of whether or not expectations have been met.

The Middle Level Mathematics Assessment, based on the new curriculum implemented in the fall of 1999, has been administered to all grade 8 students since June 2000. This assessment is based on grade 8 outcomes, but is viewed more comprehensively as an assessment of student achievement at the end of middle school (grades 6, 7, and 8).

Since 1993, the Department of Education has administered a provincial examination in mathematics at the grade 11 level, which accounts for 30% of a student's final mark.

Results for New Brunswick (English)

Mathematics Content

There were significant differences at levels 1, 2, and 3 between the performance of New Brunswick 13-year-old students who responded in English and the Canadian average. For 16-year-old students, there were significant differences at levels 3 and 4. Otherwise, New Brunswick (English) students performed as well as the Canadian average.

There were slightly fewer 13-year-old students at level 1; otherwise, there were no significant changes in performance for either age group between the 1997 assessment and that of 2001.

CHART NB(E)1

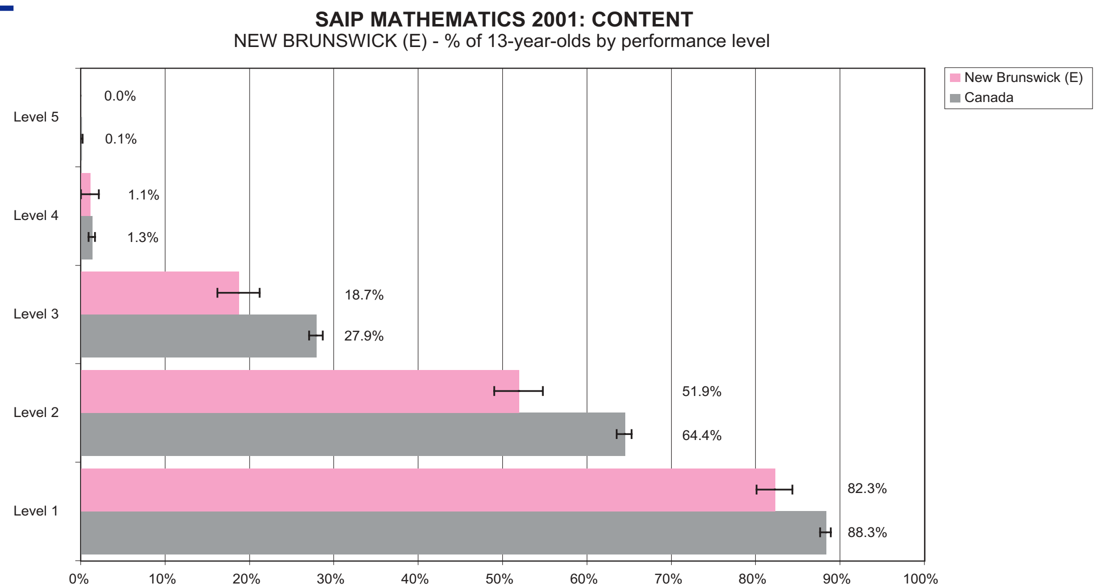
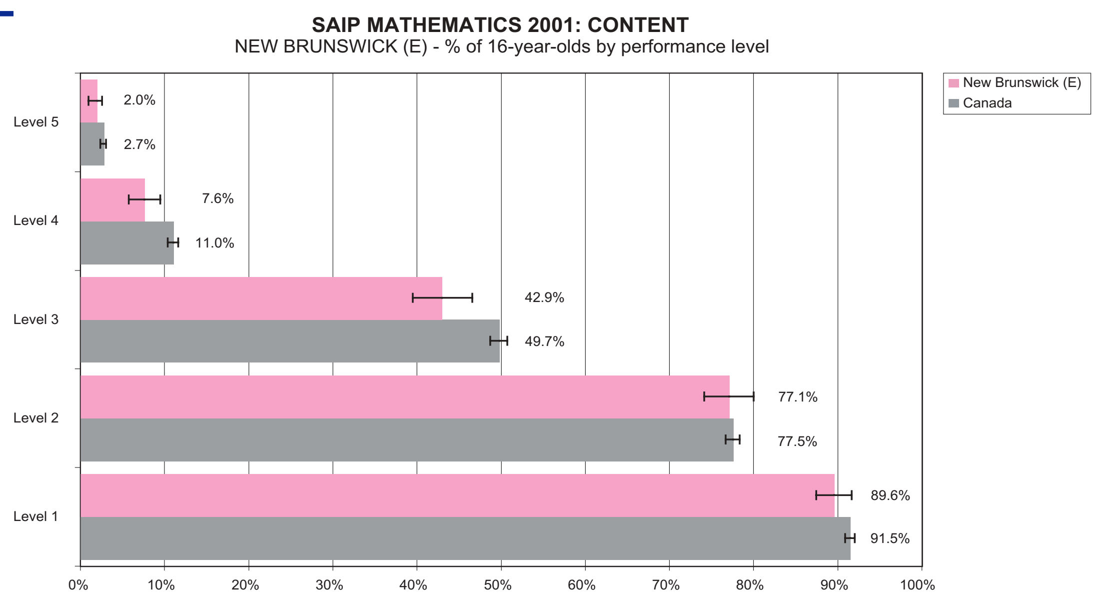


CHART NB(E)2

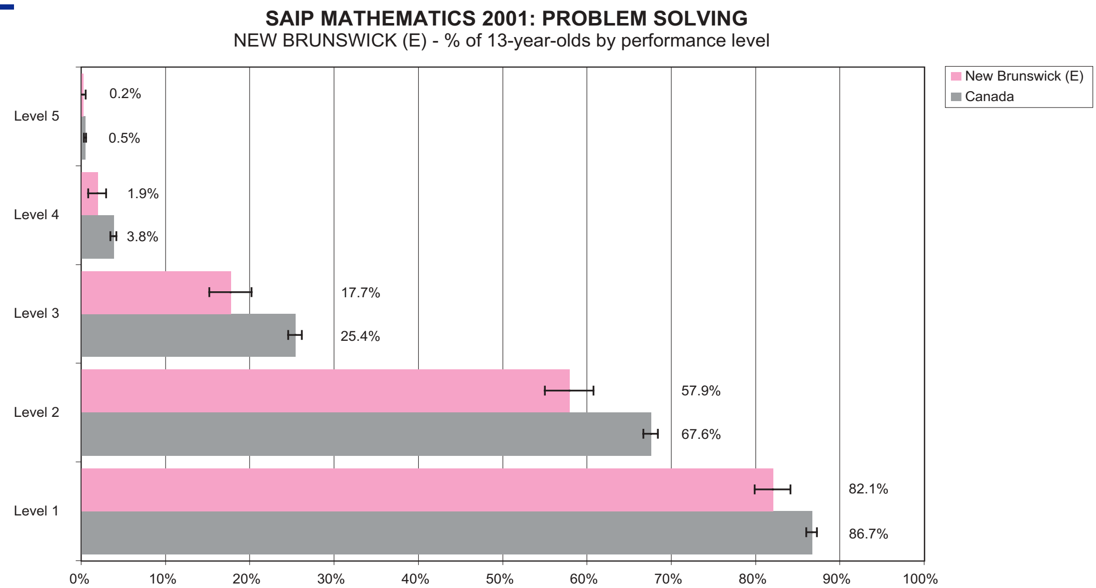


Problem Solving

There were significant differences at all levels, except level 5, between the performance of New Brunswick 13-year-old students who responded in English and the Canadian average. For 16-year-old students, there were differences at levels 3 and 4.

Since the 1997 assessment, the proportion of New Brunswick English-language 13-year-old students reaching levels 2 and 3 has increased. For 16-year-old students, the proportion has increased at levels 2, 3, and 5.

CHART NB(E)3



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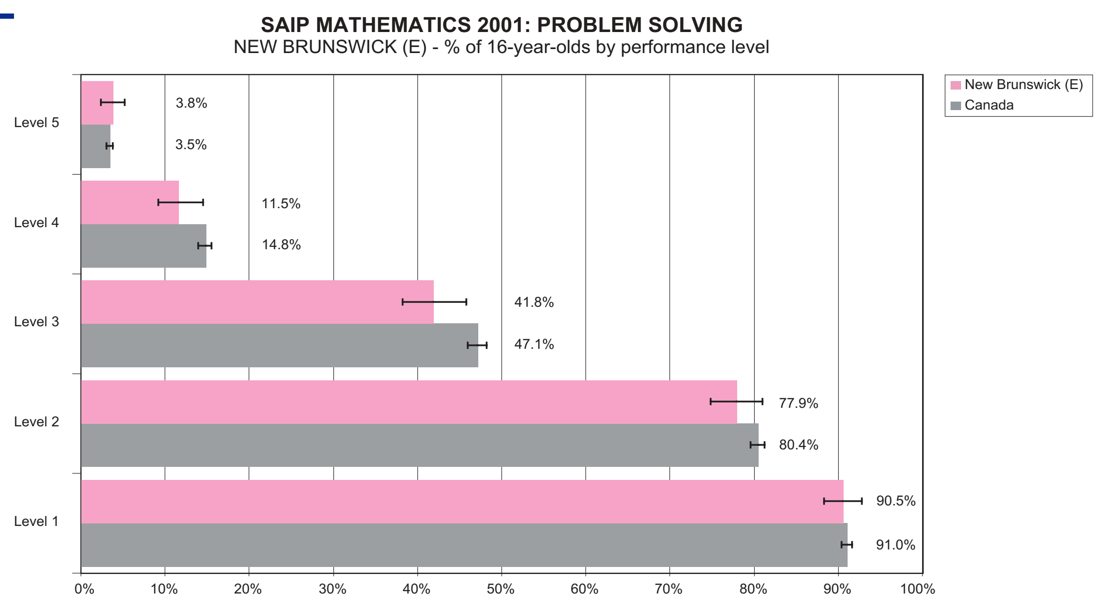


Context Statement

Social Context

Socioeconomic development has improved in New Brunswick over the past few years. In spite of this trend, the unemployment rate is higher than the Canadian average, especially in the francophone regions of the province. As of July 1, 2001, New Brunswick's population was 757,077. The average unemployment rate for 2000 was 10%, versus a Canadian rate of 6.8%. For 2000, New Brunswick reported a participation rate of 61.6% among residents 15 years old and over (work force over population of working age), and an employment to population ratio of 55.4%. Rural residents make up 51.2% of the population and urban residents 48.8%.

New Brunswick has been officially bilingual since 1969. More than one-third of its population is of French descent. School enrolment is 124,942 students, of whom 30.7% attend francophone schools. Almost half of students enrolled in francophone schools live in a majority anglophone environment.

Organization of the School System

The New Brunswick school system begins in kindergarten and continues to grade 12. Children are enrolled in kindergarten in the calendar year in which they reach the age of 5. School attendance is compulsory until the end of secondary schooling or age 18.

In 1974, the province created an educational system composed of two parallel and distinct divisions, one for each linguistic community. The francophone section of the Department of Education is responsible for providing curriculum and assessment that respond to the needs of the francophone population. The province is divided into five francophone school districts with 38,387 students and nine anglophone school districts with 86,555 students.

In recent years, considerable efforts have been made to respond to the particular needs of students and to make school accessible to all. In accordance with the New Brunswick *Education Act* and regulations, school administrators are required to place students with special needs in regular classrooms, providing that the educational requirements of all students are considered. Moreover, early detection programs have been put in place to discourage school-leaving. This has resulted in one of the lowest school dropout rates in Canada: for the 1999–2000 school year, francophone schools recorded a dropout rate of 3.1%.

There is no provincial directive covering achievement levels from grades 1 to 8. In grades 9, 10, 11, and 12, the minimum passing grade for credit is 55%. Since 1991, provincial secondary school examinations are given to all students at the end of their studies and count for 40% of their final grade in seven required subjects, including mathematics in grade 11.

Mathematics Teaching

Mathematics is a core subject in New Brunswick schools. Mathematics courses are compulsory in the province for all students from kindergarten to grade 11. By age 13, a student has received (starting as early as the first year of schooling) approximately 1,300 hours of mathematics education, with an additional 500 hours by age 16. In secondary school (grades 9 to 12), francophone students are required to obtain four mathematics credits to receive a secondary diploma.

The aims of mathematics courses are to help students

- learn to value mathematics
- acquire confidence in their mathematics skills
- become empowered to solve problems
- learn to communicate mathematically
- learn to reason mathematically

These aims are attained through mathematics content that includes algebra, measurement, statistics and probability, transformational geometry, Euclidian geometry, analytical geometry, linear programming, vectors and matrices, sequences and series, trigonometry and financial mathematics.

Assessment of Mathematics Achievement

At the provincial level, the francophone sector of the Department of Education has administered since 1991 a grade 11 mathematics examination, at the end of the last required course in this subject at the secondary level. Results of this examination, which make up 40% of the student's final mark, are provided to the school within five days following administration. The examination includes both multiple-choice and essay-type questions and covers the essential dimensions of the curriculum including problem solving. A detailed statistical report is later provided to school districts and schools.

The participation of teachers is essential at every stage of development, administration, and marking of the examinations. Such participation is very helpful to teachers in their own mathematics assessment practices.

In 1993, a formative assessment program for mathematics was put in place at the elementary level. Assessments are administered in September of each year to students in grades 4 and 8. Assessment results provide indicators of students' strengths and weaknesses, very early in the school year. This information is intended for teachers and parents but is also helpful to students for taking stock at key points in their school career.

Results for New Brunswick (French)

Mathematics Content

There were significant differences at levels 1, 2, and 3 between the performance of New Brunswick French-language 13-year-old students and the Canadian average. For 16-year-old students, there were significant differences at levels 4 and 5.

In the 2001 assessment, fewer New Brunswick 13-year-old students who responded in French reached levels 1 and 3 than in 1997. Fewer 16-year-old students reached levels 1, 3, and 4 in 2001.

CHART NB(F)1

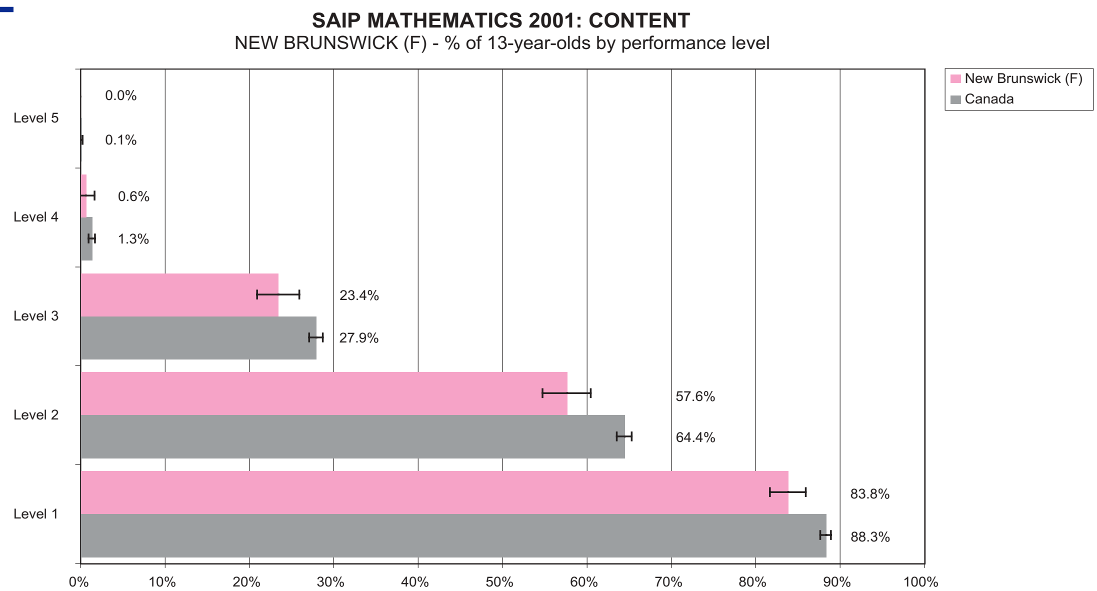
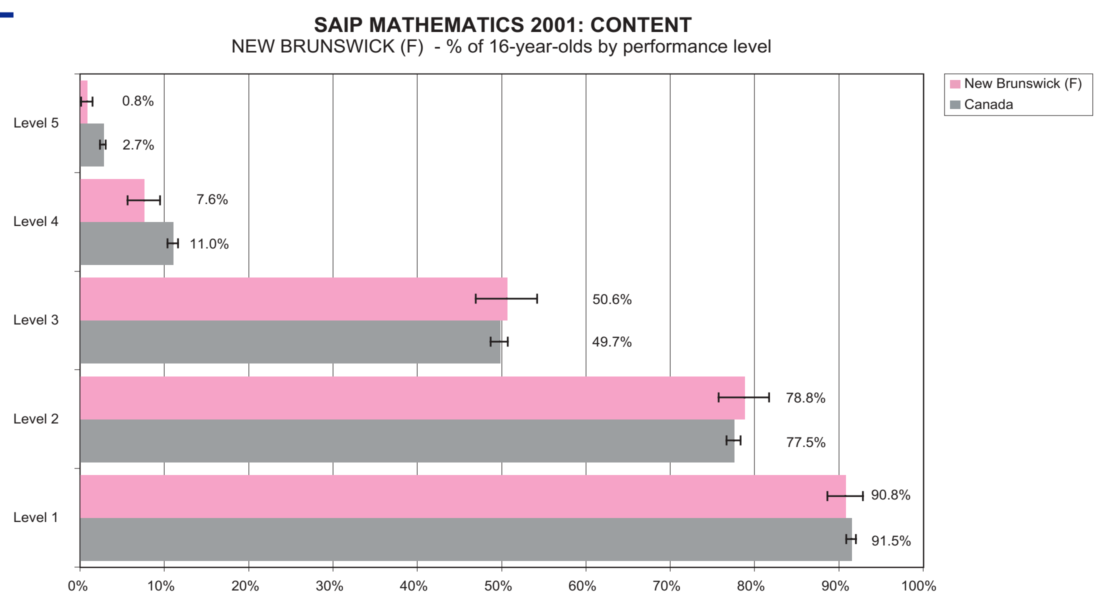


CHART NB(F)2



Problem Solving

New Brunswick students in both age groups who responded in French performed as well as or better than the Canadian average. For 16-year-old students, more achieved at level 3 than the Canadian average.

Since the 1997 assessment, the proportion of New Brunswick French-language 13-year-old students reaching levels 2 and 3 has increased. For 16-year-old students, the proportion has increased at levels 2, 3, and 4.

CHART NB(F)3

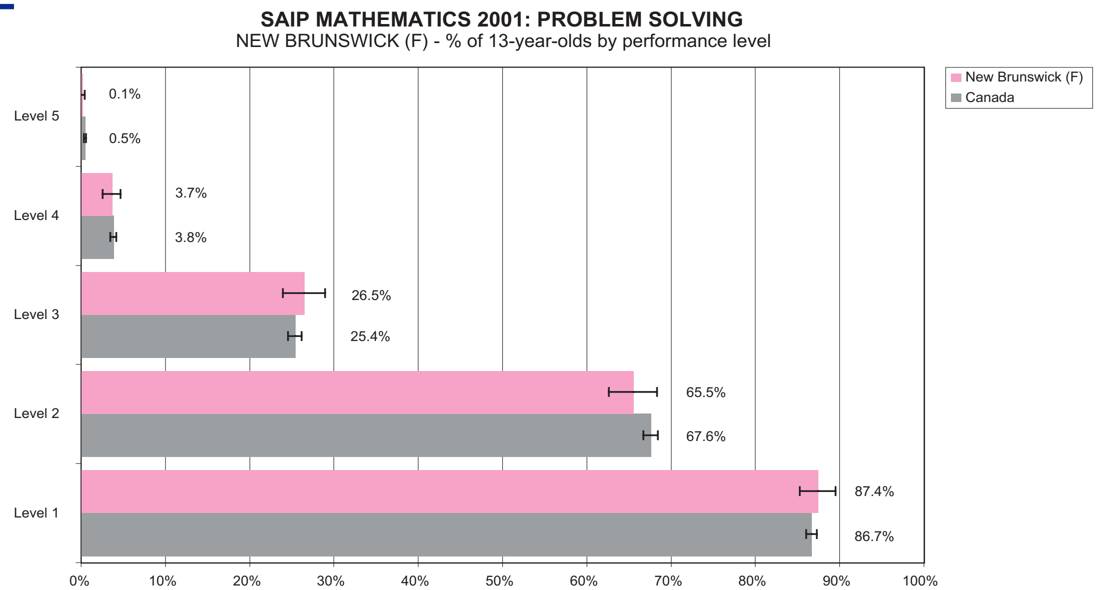
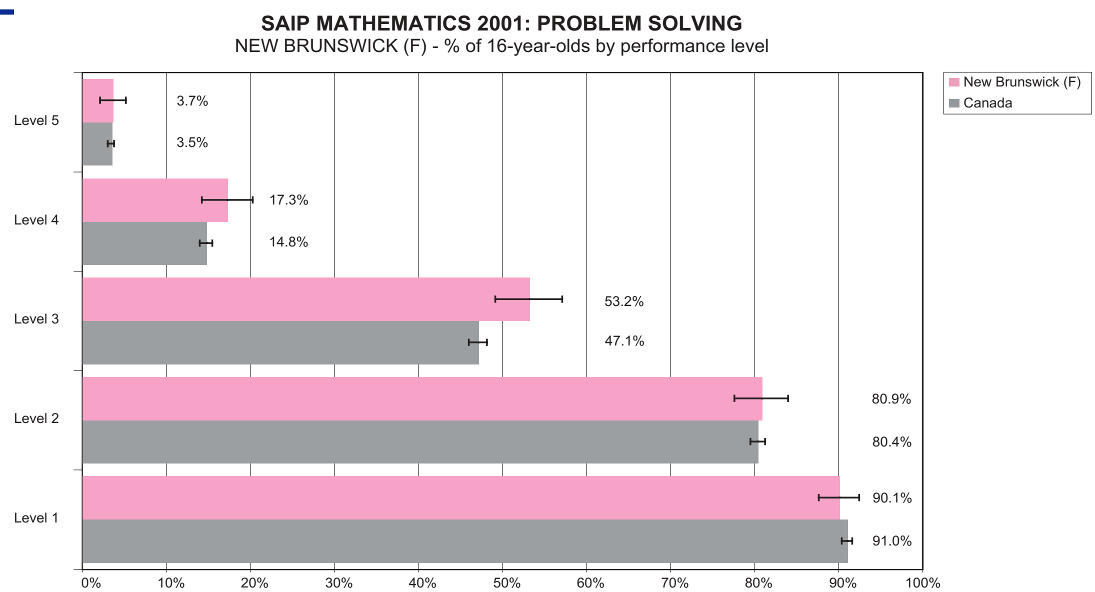


CHART NB(F)4



Context Statement

Social Context

Nova Scotia is a small province with a population of 942,700 and a higher rural population than the Canadian average. Population growth is currently below 1% annually. Immigration is low both in absolute numbers and compared to immigration in Canada as a whole. About 9% of the population speak both English and French, or French only. Among the total population, 2% is African Canadian, over 1.4% is Aboriginal, and over 1.5% consists of other visible minorities. Unemployment rates in Nova Scotia are typically above the Canadian average.

Organization of the School System

Nova Scotia's total school population is 155,873 from primary to grade 12. The province has a teaching force of 9,752. There are seven school boards. About 97.4% of the students are enrolled in anglophone school boards, and 2.6% of the students are enrolled in the Acadian school board. School enrolment is expected to decrease over the next few years.

Children who are 5 years old on or before October 1 of the current school year are admitted to elementary school. Students must attend school until they are 16 years old. For the most part, 13-year-old students are in grades 7 and 8, and 16-year-old students are in grades 10 and 11.

Mathematics Teaching

Nova Scotia has been working in collaboration with the other three provinces in Atlantic Canada in the development of an Atlantic Canada mathematics curriculum for kindergarten to grade 12. The philosophy and outcomes of this mathematics curriculum are stated in *Foundation for the Atlantic Canada Mathematics Curriculum* and are based on the National Council of Teachers of Mathematics (NCTM) standards described in *Curriculum and Evaluation Standards for School Mathematics* (1989) and *Principles and Standards for School Mathematics* (2000).

Nova Scotia firmly believes that a mathematical curriculum must be shaped by a vision that fosters the development of mathematically literate students who can extend and apply their learning and who are effective participants in an increasingly technological society.

The mathematically literate student will

- appreciate the utility and value of mathematics
- demonstrate mathematical power (i.e., display confidence and competence in his or her ability to do mathematics)
- be a mathematical problem solver
- communicate mathematically
- reason mathematically

Further, Nova Scotia believes that a mathematics curriculum should reflect the following realities about the nature of mathematics itself:

- Students must take an active role in their study of mathematics.
- Mathematics must be regularly connected to meaningful applications.
- Mathematics and mathematics instruction are greatly affected by changes in technology.

Mathematics Assessment

The Program of Learning Assessment for Nova Scotia (PLANS) includes mathematics assessments in elementary at grade 5 and junior high at grade 8, administered alternately from one year to the next. Currently, Nova Scotia Examinations (NSE) for anglophone students do not include grade 12 mathematics. Mathematics examinations will be administered following the completion of the implementation of the Atlantic Canada mathematics curriculum in senior high school.

Results for Nova Scotia (English)

Mathematics Content

There were significant differences between the performance of Nova Scotia 13-year-old and 16-year-old students who responded in English and the overall Canadian results at most levels. There were no significant differences for 13-year-old students at level 5 and for 16-year-old students at levels 1 and 2.

In the 2001 assessment, fewer Nova Scotia English-language students in both age groups reached levels 1 and 3, in mathematics content, than in the 1997 assessment.

CHART NS(E)1

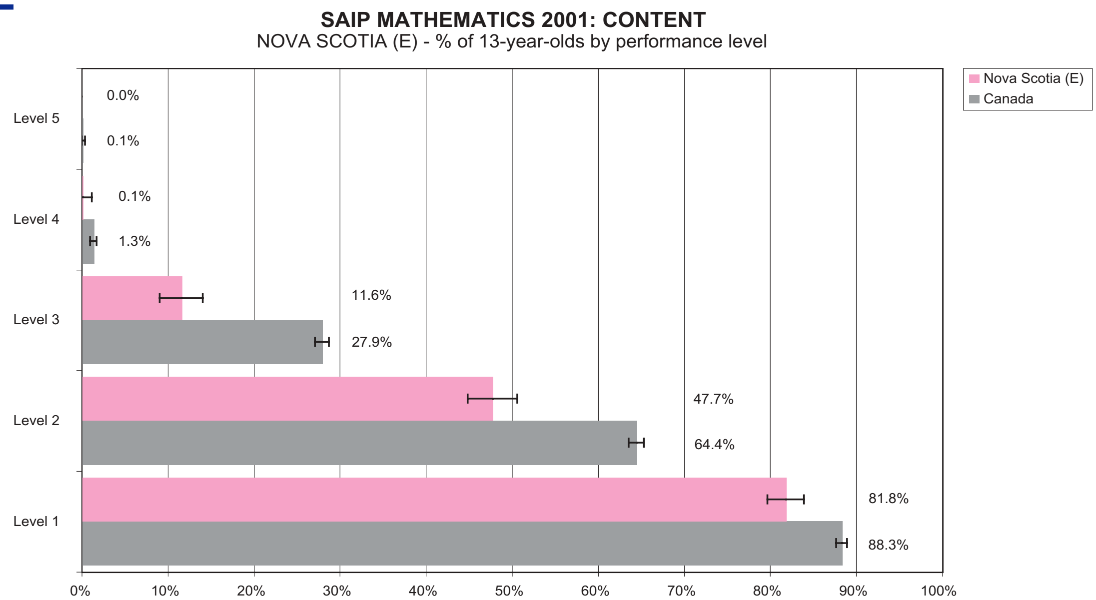
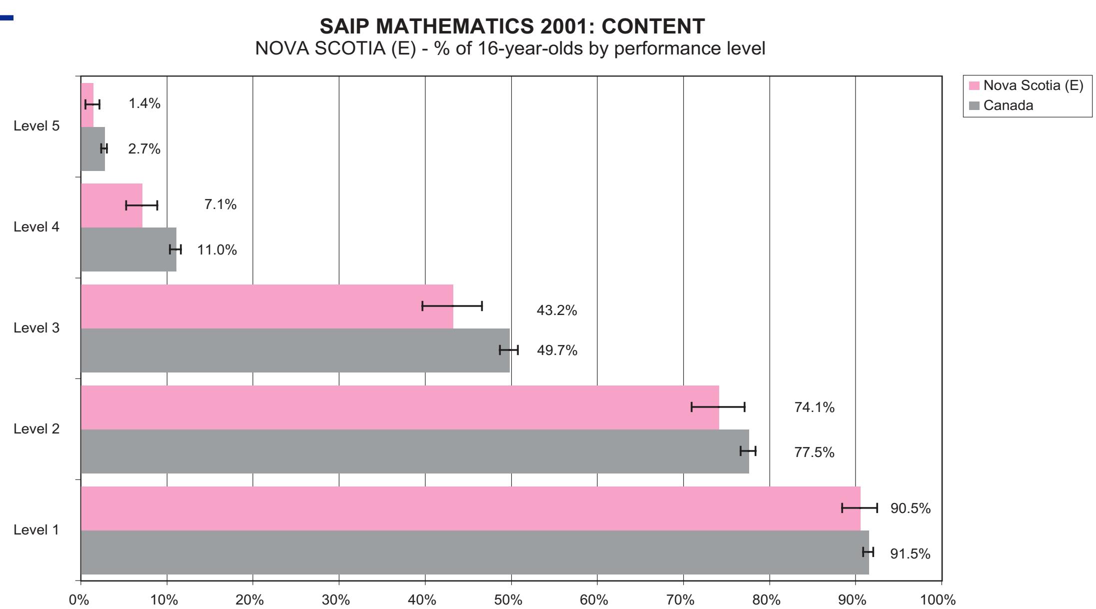


CHART NS(E)2



Problem Solving

There were significant differences between the performance of Nova Scotia 13-year-old students who responded in English and the overall Canadian results at levels 1, 2, 3, and 4. There were significant differences for 16-year-old students at levels 3 and 4.

In the 2001 assessment, more 16-year-old Nova Scotia English-language students reached level 5 in problem solving than in 1997. Otherwise there were no significant changes in performance in problem solving from 1997 to 2001.

CHART NS(E)3

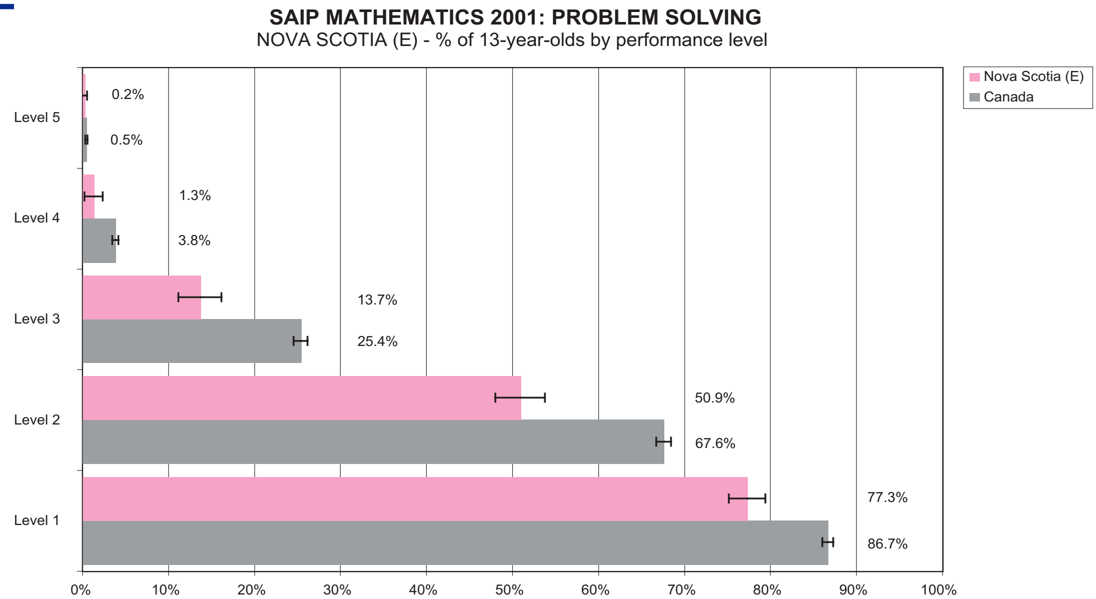
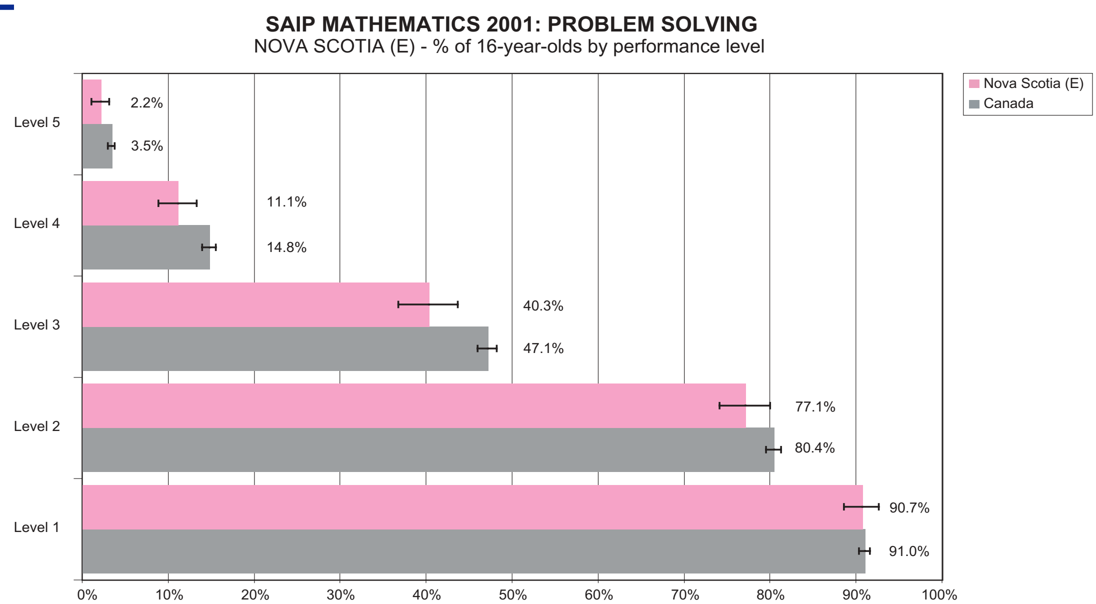


CHART NS(E)4



Context Statement

Social Context

Nova Scotia is a small province with a population of 942,700, and a higher rural population than the Canadian average. Population growth is currently below 1% annually. Immigration is low both in absolute numbers and compared to immigration in Canada as a whole. About 9% of the population speaks both English and French, or French only. Among the total population, 2% is African Canadian, over 1.4% is Aboriginal, and over 1.5% consists of other visible minorities. Unemployment rates in Nova Scotia are typically above the Canadian average.

Organization of the School System

Nova Scotia's total school population is 155,873 from primary to grade 12. The province has a teaching force of 9,752. There are seven school boards. About 97.4% of the students are enrolled in anglophone school boards, and 2.6% are enrolled in the Acadian school board (Conseil scolaire acadien provincial, CSAP). The CSAP is the only province-wide Acadian school board and includes 17 elected members. The board operates under a superintendent, who is responsible for the 18 schools. Acadian schools have been homogeneous since September 2001.

The program of studies for primary to grade 12 is developed under the direction of the Acadian and French-language Services Branch (AFLSB) at the Department of Education. The implementation of this outcome-based program is the responsibility of the CSAP.

Children who are 5 years old on or before October 1 of the current school year are admitted to elementary school. Students must attend school until they are 16 years old. For the most part, 13-year-old students are in grades 7 and 8, and 16-year-old students are in grades 10 and 11.

Mathematics Teaching

The French-language mathematics program is currently being implemented at the junior high level. A new senior high mathematics program is being developed and will be pilot-tested in Acadian schools in September 2002.

In Nova Scotia, the mathematics program is based on learning outcomes that have been developed jointly with the other Atlantic provinces and the Atlantic Provinces Education Foundation (APEF). The four areas of mathematics that form the organizational framework of the mathematics program from primary to grade 12 are numbers, patterns and relations, shape and space, and statistics and probability.

For each grade level, the program includes specific learning outcomes that integrate the knowledge, skills, and attitudes required to develop a mathematic and technology-based culture, with the following characteristics:

- communication
- problem solving
- relations
- reasoning
- mental arithmetic and estimation
- technology
- visualization

To help achieve the learning outcomes, the mathematics program promotes the learning of mathematics as an active process consisting of meaningful activities that reflect actual situations in the daily lives of students. Students are ultimately responsible for their own learning as they engage in a context of collaboration and positive interaction. Teachers motivate their students to complete their tasks and provide a learning environment that fosters thoughtful analysis. Students

- believe in their own learning abilities
- understand that learning is relevant and important
- feel comfortable in the learning environment
- know that they are ultimately responsible for their own learning and attitudes
- use a wide variety of learning resources
- actively participate in their own evaluation, which is an integral part of the learning process

Mathematics Assessment

The Department of Education is currently developing assessments that will provide information on student achievement in relation to the learning outcomes in mathematics. The development of these assessments is the result of a collaborative effort between Department of Education staff and mathematics teachers.

Results for Nova Scotia (French)

Mathematics Content

There were significant differences between the performance of Nova Scotia 13-year-old students who responded in French and the overall Canadian results at levels 2 and 3. Nova Scotia French-language 16-year-old students performed as well as the Canadian average at all levels.

In the 2001 assessment, fewer Nova Scotia French-language students in both age groups reached levels 2, 3, and 4 in mathematics content than in 1997. Fewer 16-year-old students reached level 1 as well.

CHART NS(F)1

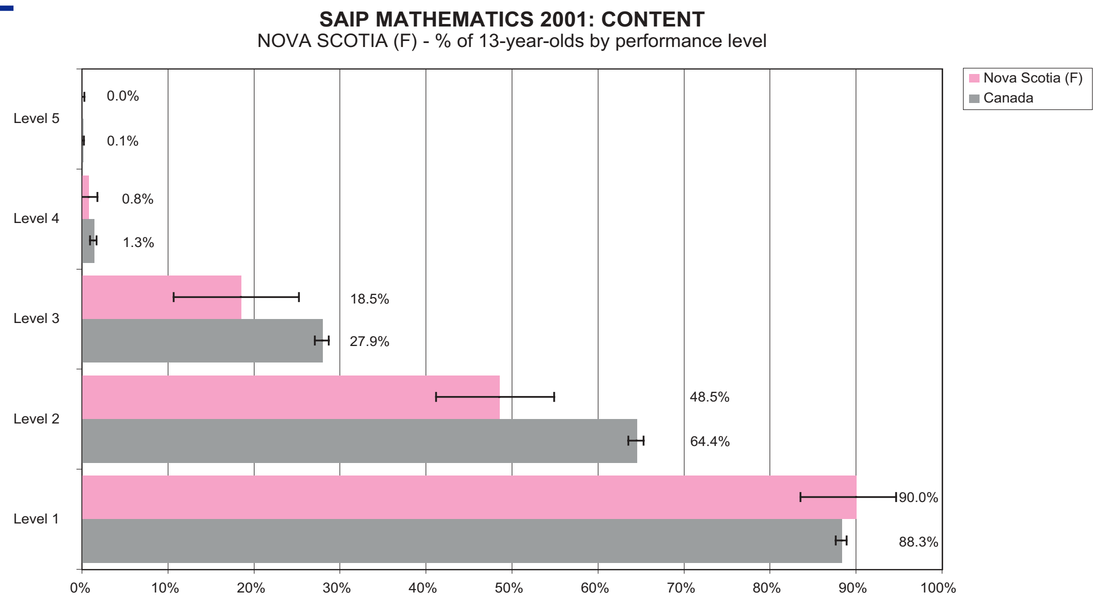
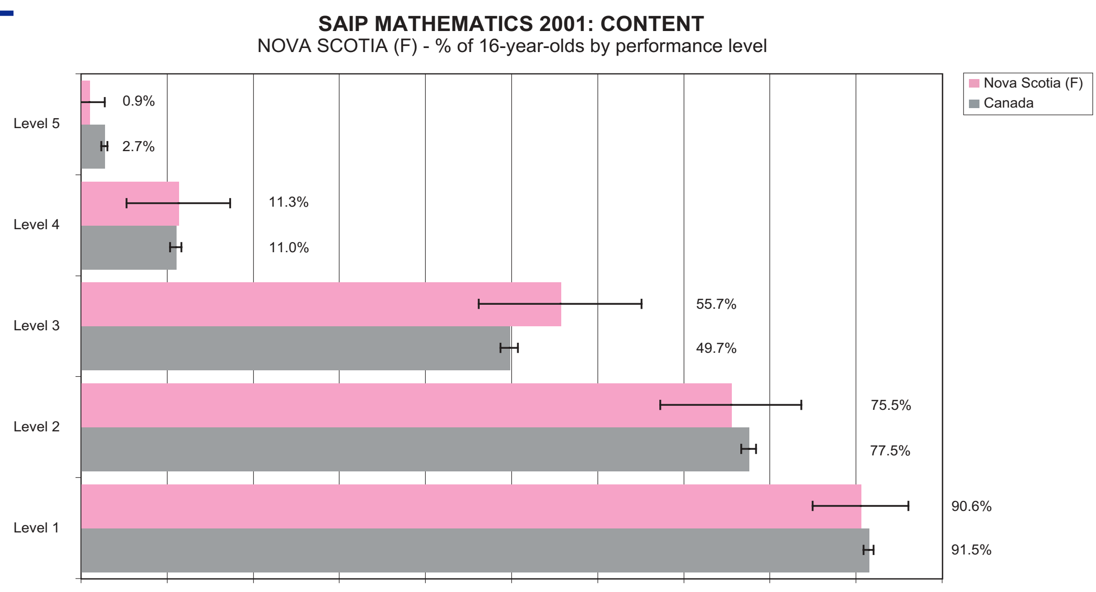


CHART NS(F)2



Problem Solving

There were significant differences between the performance of Nova Scotia 13-year-old French-language students at levels 3 and 5 and of 16-year-old students at levels 4 and 5 and the overall Canadian results. There were no significant differences at other levels for these students.

In the 2001 assessment, fewer 16-year-old Nova Scotia French-language students reached level 5 in problem solving. Otherwise, there were no significant changes in performance in problem solving between 1997 and 2001.

CHART NS(F)3

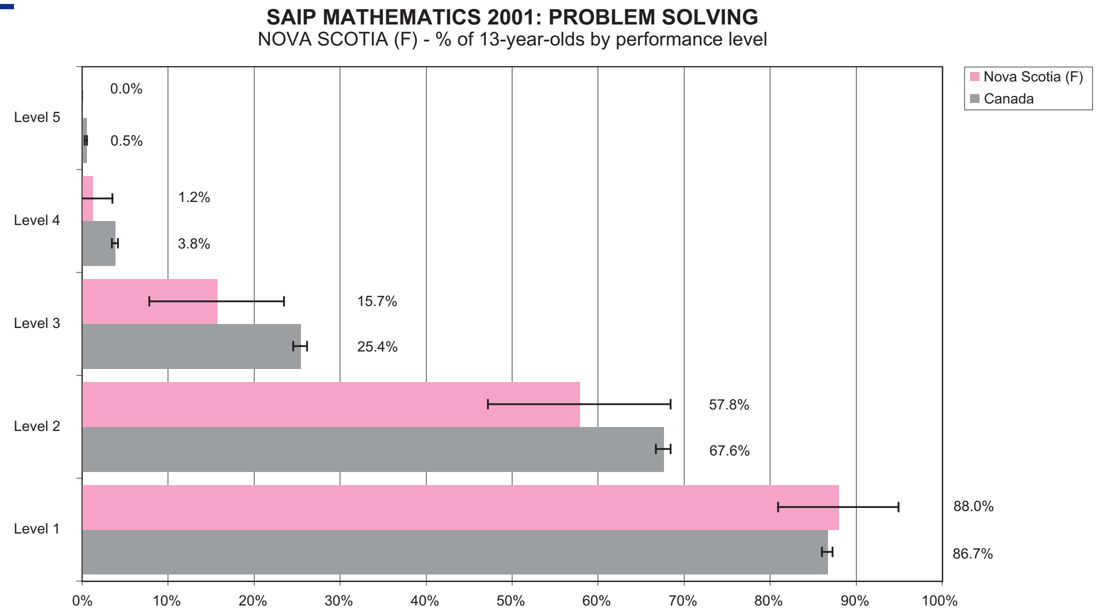
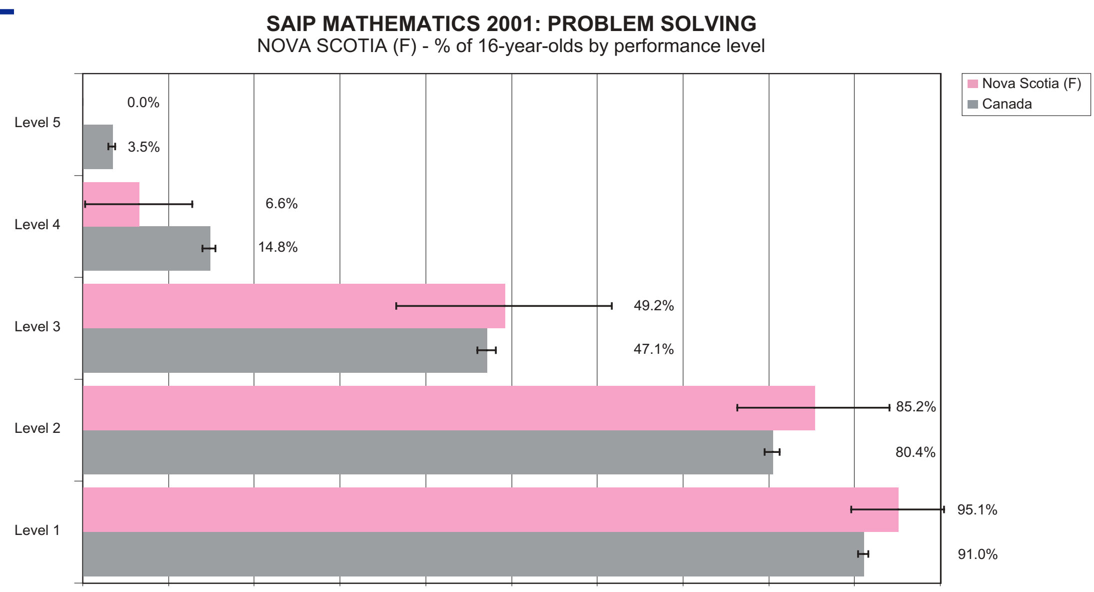


CHART NS(F)4



Context Statement

Social Context

Prince Edward Island is the smallest province in Canada, both in terms of land (5,600 square kilometres) and population, 139,100. Ninety-five per cent of the population speaks English. Sixty per cent of the population is rural and about 7 per cent live on farms. The setting is predominantly rural; agriculture, tourism, and fisheries are the major industries. The unemployment rate is above the Canadian average, and per capita income is below the Canadian average. The Confederation Bridge, the world's longest continuous multi-span bridge, opened in 1997 to connect this crescent-shaped island to the mainland.

Organization of the School System

At the time of the SAIP Mathematics III Assessment in 2001, Prince Edward Island's public school system had three school boards and 24,300 students enrolled in 69 public schools. The province has a teaching force of approximately 1,500 teachers employed by the school boards. Of the total student population, about 2.5% are enrolled in five French schools, and 15% are enrolled in French immersion courses. In addition, there were four private schools with 220 students and one school operated by First Nations.

The province expects school enrolment to decrease over the next few years.

In September 2000, Prince Edward Island introduced a province-wide publicly funded community-based kindergarten program, which attracted 97% of the province's eligible 5-year-olds.

The school system encompasses grades 1 to 12. Students entering grade 1 in September must be six years of age by the end of the following January.

Prince Edward Island's students are accommodated within facilities that contain a number of grade configurations; grades 1–3, 1–4, or 1–6; 4–6, 5–8, 1–8, 1–9; 7–9, 9–12, and 10–12. This diversity results from demands placed on the school by the local community, the school enrolment, and existing facilities.

In Prince Edward Island, the 13-year-old students who participated in the SAIP Mathematics III Assessment were for the most part in grades 7 and 8 where mathematics is taught as one of the subjects; the 16-year-old students were in programs at the grade 10 or 11 level, and are required to take at least two mathematics courses for high school graduation.

Mathematics Teaching

In Prince Edward Island, learning is highly valued, and equitable opportunities for lifelong learning are a priority.

The province has been working in collaboration with the Atlantic Provinces Education Foundation on the development of the Atlantic Canada mathematics curriculum for grades 1 to 12. The philosophy and outcomes of this mathematics curriculum are stated in the *Foundation for the Atlantic Canada Mathematics Curriculum,* which is based on the National Council of Teachers of Mathematics *Curriculum and Evaluation Standards for School Mathematics (1989)*.

Currently, the mathematics curriculum has been revised, and resources have been updated at most grade levels, with piloting and implementation occurring now at the higher grades.

Mathematics Assessment

Prince Edward Island does not undertake large-scale provincial assessment programs. Classroom teachers are responsible for assessment, evaluation, and promotion of their students from grade 1 through 12.

Prince Edward Island teachers are encouraged to use a variety of assessment strategies that are aligned with the learning outcomes and to integrate assessment with their instruction; they use this information to help them make decisions about their teaching practices and strategies and to inform students, parents, and other school personnel about student progress.

Results for Prince Edward Island

Mathematics Content

In general, there are significant differences between the achievement of Prince Edward Island students of both age groups and the Canadian average in mathematics content. Prince Edward Island 13-year-old students performed as well as Canada overall at level 5.

In the 2001 assessment, fewer 13-year-old students reached level 1; otherwise, there were no significant changes between 1997 and 2001.

CHART PEI1

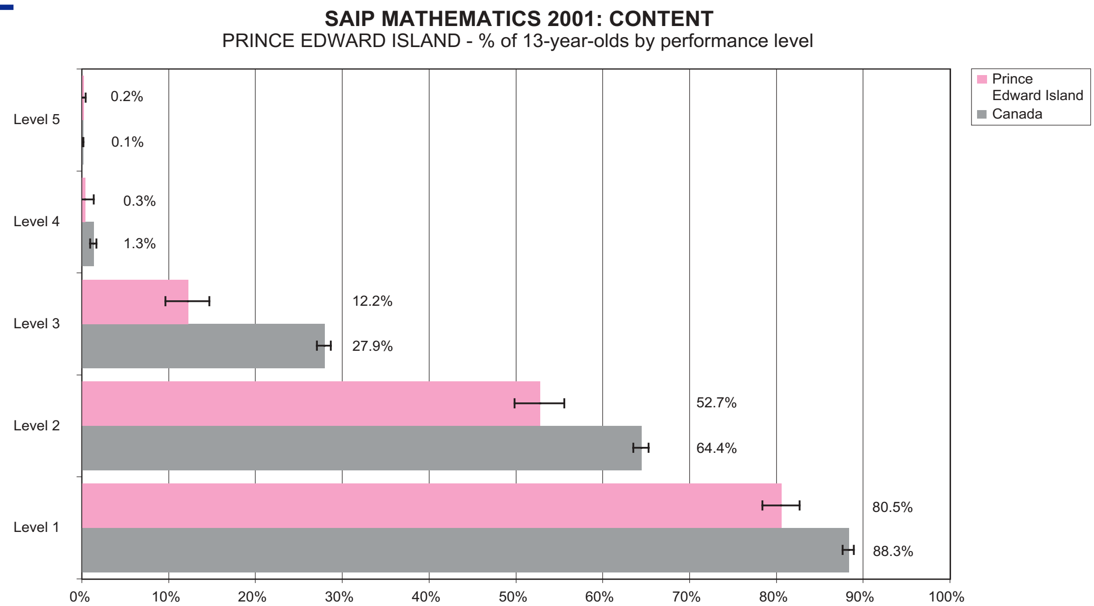
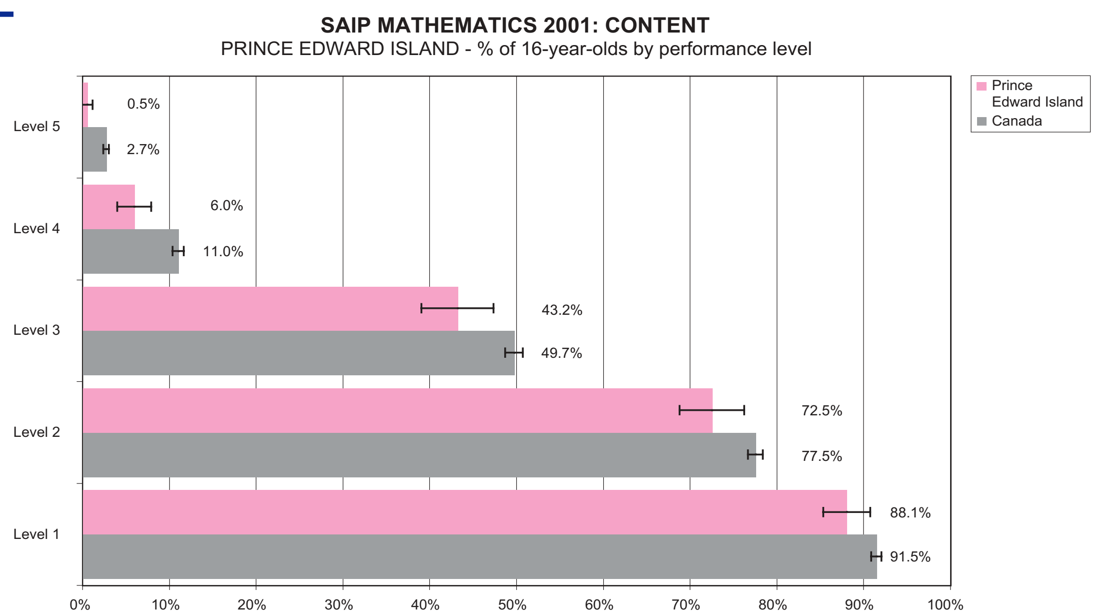


CHART PEI2

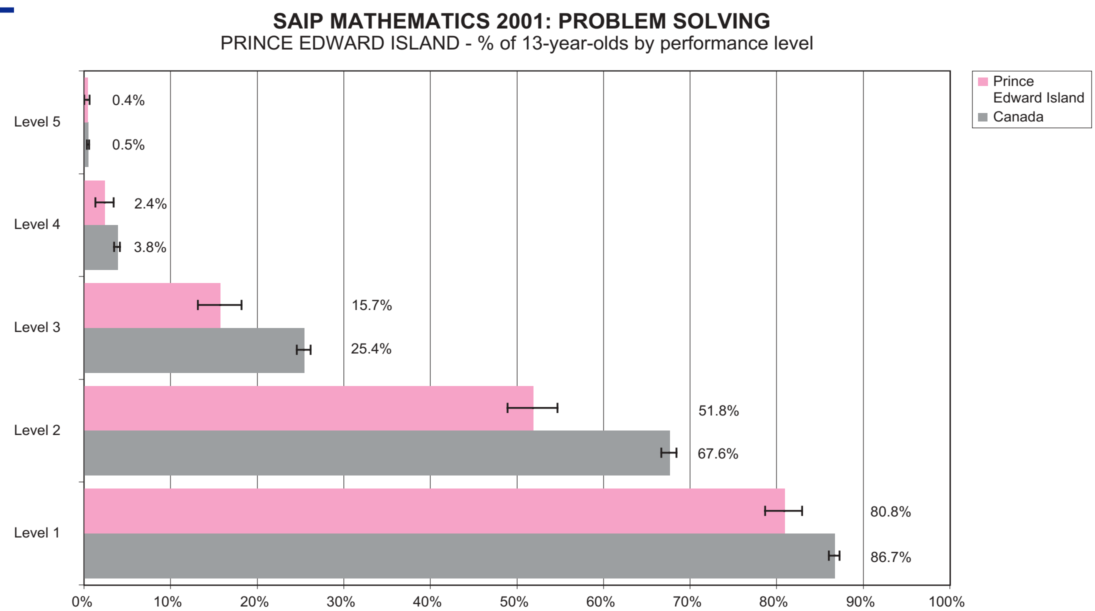


Problem Solving

In general, there are significant differences at levels 1, 2, and 3 between the achievement of 13-year-old Prince Edward Island students and the Canadian average in problem solving. Prince Edward Island 13-year-old students performed as well as Canada overall at levels 4 and 5. There are significant differences at levels 3, 4, and 5 between the achievement of 16-year-old Prince Edward Island students and the Canadian average. Prince Edward Island 16-year-old students performed as well as Canada overall at levels 1 and 2.

In the 2001 assessment, more 16-year-old students reached levels 2 and 3 than in 1997. There were no other significant changes in the results of the 2001 assessment.

CHART PEI3



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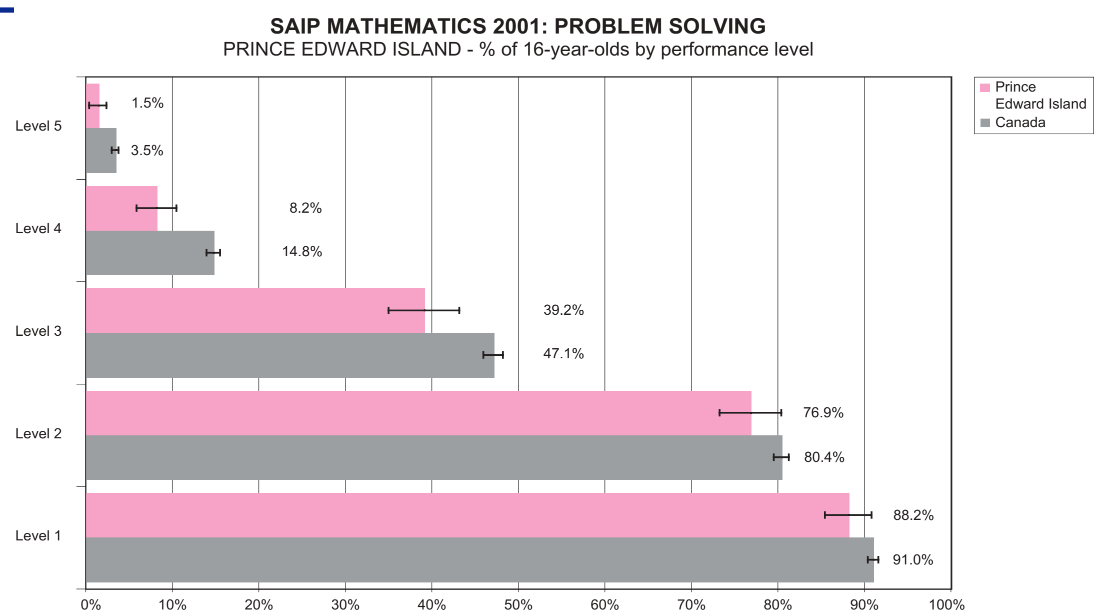


Context Statement

Social Context

In Newfoundland and Labrador, there are more than half a million people spread over an area of about 150,000 square kilometres. The small population and large size of the province make it difficult and expensive for the government to provide educational programs and services. This problem may be somewhat compounded by declining enrolments since 1972. The economy is expected to increase significantly with a predicted GDP growth of 5.4% by 2002. This is probably the result of activity in the mining sector, growth in tourism, and increased fisheries output. As well, employment is expected to increase by 1.9% over the next year within the province.

Organization of the School System

The province's education system has changed from a church-based system to a fully public one. This has resulted in the consolidation of school boards, a reduction in the amount of duplication in the system, and the closure of many schools. As of September 1998, there were 11 publicly elected school boards (including one francophone board), 337 schools with a total student enrolment of 90,167, and 6,283 school-based educators.

Even though school entry is compulsory for children of six years of age by December 31, most enter kindergarten if they are five by that date. Typically 13-year-olds are in grade 8, and 16-year-olds are in grade 11.

Mathematics Teaching

Over the past few years, major changes in the secondary mathematics curriculum have been driven by significant events at the provincial, national, and international levels. New directions in mathematics education have been put forward in such documents as *Curriculum and Evaluation Standards for School Mathematics* (National Council of Teachers of Mathematics, 1989) and *Professional Standards for Teaching Mathematics* (NCTM, 1991). These publications and more recent ones such as the *Principles and Standards for School Mathematics* (NCTM, 2000) have had a significant impact on the nature of changes to the mathematics curriculum and instruction, including the implementation of new curriculum in 2001.

Currently, all students from kindergarten to grade 9 are required to take mathematics as part of their education program. The mathematics curriculum for these grades is a common curriculum. All students do the same program at a particular grade level, unless they are identified as having special needs. To graduate, high school students must complete two 2-credit courses as part of their required program. Each of these courses represents a minimum of 110 instructional hours. Programming in mathematics at the high school level provides three possible pathways for students: practical, academic, and advanced. Approximately one-quarter of the students take the practical program, one-half the academic, and one-quarter the advanced program. Some students also take such optional courses as statistics, calculus readiness, and advanced placement calculus. The vast majority of students study mathematics in all years of their high school program.

The mathematics curriculum is in the process of revision from kindergarten to grade 12. This new curriculum is based on a framework described in the *Foundation for the Atlantic Canada Mathematics Curriculum*, as part of an Atlantic Canada Common Core Curriculum Initiative. In this province, implementation of this new curriculum has occurred in kindergarten and in grades 1 and 10, with implementation in grades 2, 7, and 11 and partial implementation in grade 12 occurring as of September 2001. Piloting is ongoing at grades 3, 4, and 5, with some piloting occurring in grade 12.

Mathematics Assessment

In recent years, there has been an increased emphasis on criterion-referenced testing. Criterion-referenced tests in mathematics were administered to grade 3 students in 1993, 1996, and 2001; to grade 6 students in 1994 and 1995; and to grade 9 students in 1997 and 1999. Until 1996, examinations were written in all exit-level mathematics courses. As of June 2001, these exams were reinstated and administered in academic mathematics and advanced mathematics.

Results for Newfoundland and Labrador

Mathematics Content

Newfoundland and Labrador 13-year-old students performed as well as Canada overall at levels 4 and 5. There were significant differences at other levels for 13-year-old students, and at all levels for 16-year-old students.

In the 2001 assessment, fewer students reached level 1 in both age groups in mathematics content than in 1997.

CHART NF1

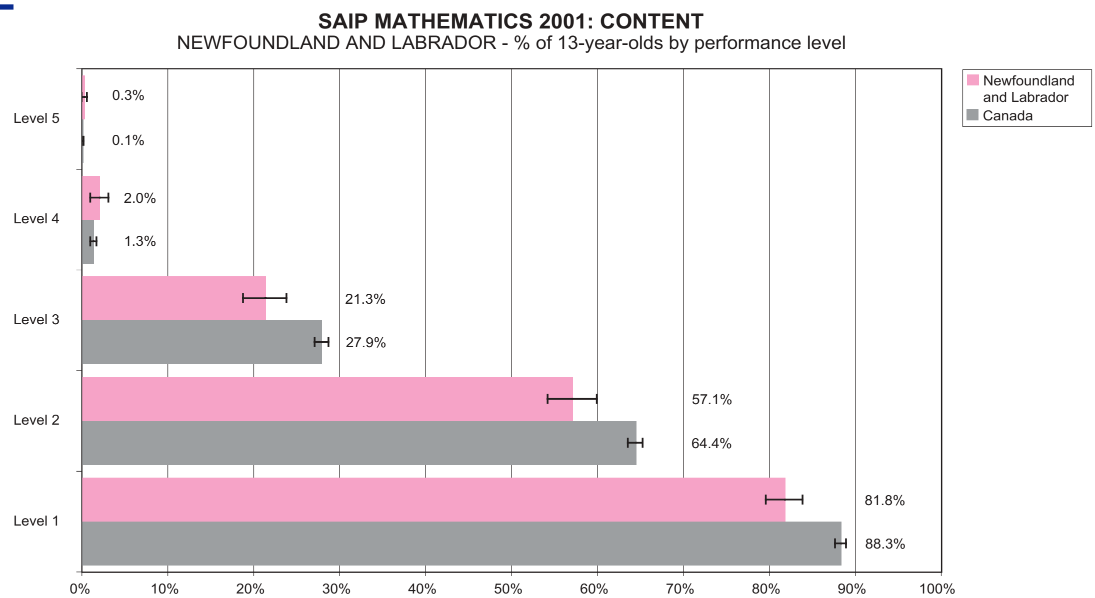
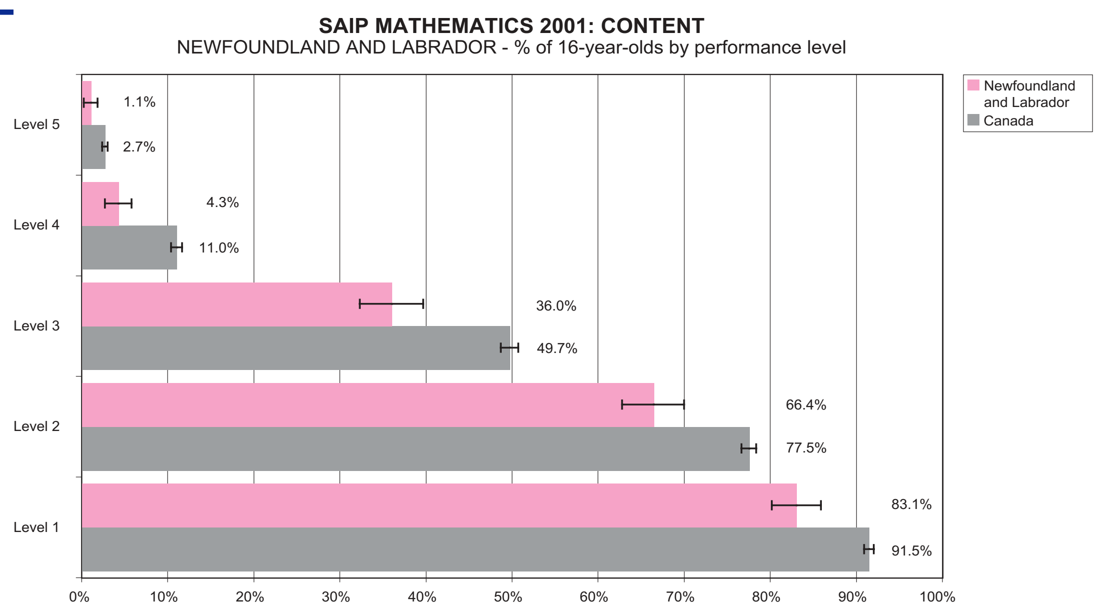


CHART NF2

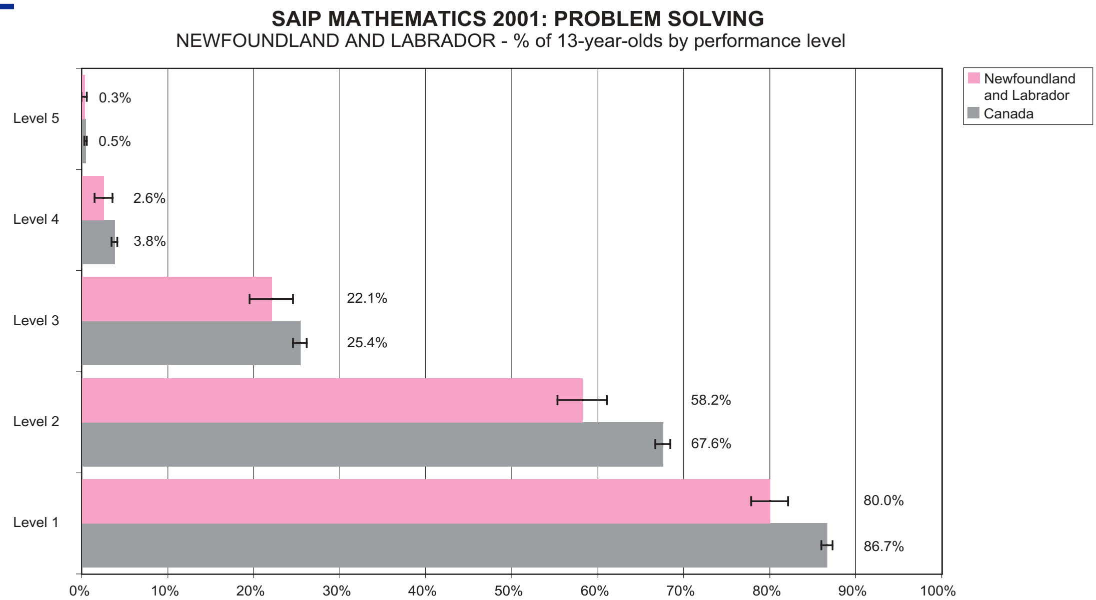


Problem Solving

Newfoundland and Labrador 13-year-old students performed as well as Canada overall at levels 3, 4, and 5. There were significant differences at other levels for 13-year-old students, and at all levels for 16-year-old students.

In the 2001 assessment, more 13-year-old students reached levels 2, 3, and 4 than in 1997 in problem solving.

CHART NF3



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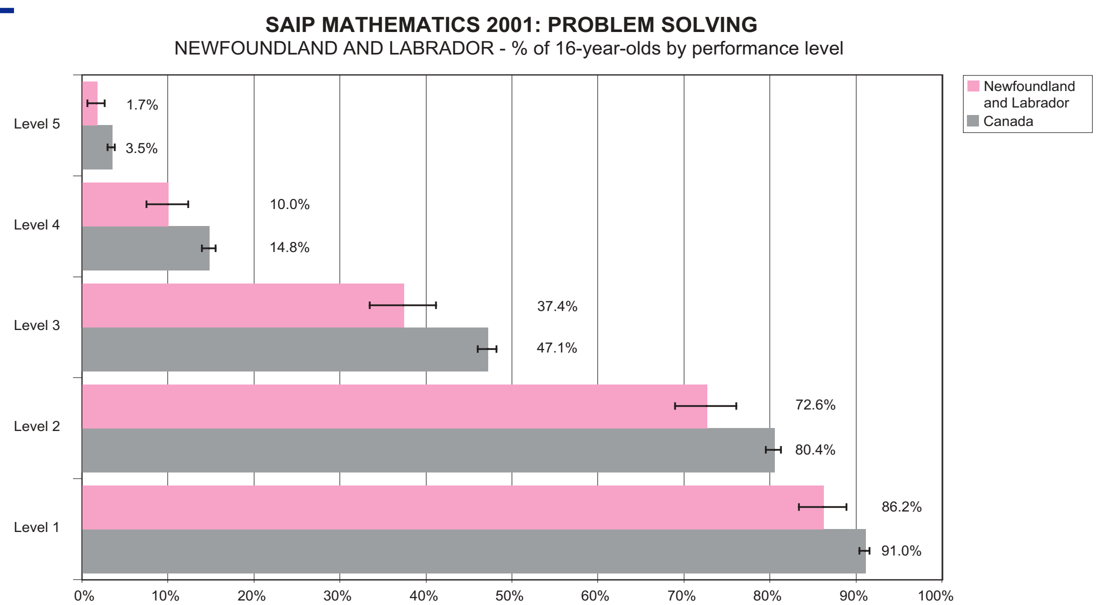


Context Statement

Social Context

Yukon has a total land area of 483,450 square kilometres and a population of 30,309. The population of Whitehorse, the capital city, is 22,526, and the remaining population is divided among the 19 rural communities.

Organization of the School System

There are 28 schools with a total enrolment from kindergarten to grade 12 of 5,579. One-half of the schools (14) are designated as rural schools. These schools typically have low student enrolment, several multi-level classes, and low pupil-teacher ratios. Many rural schools do not offer grades 11 and 12 and may offer fewer optional programs in the secondary grades.

Unlike most jurisdictions in Canada, Yukon has no education taxes. The single school board is for École Émilie-Tremblay, the territory's only French school. School superintendents work for the Department of Education, which is responsible for most aspects of school operations. Almost every school has a school council, a body that has some but not all the powers of a school board, including the responsibility for school rules, school plans, and dispute resolution.

Yukon follows the British Columbia curriculum in all subject areas. This curriculum is sometimes modified — with departmental approval — to reflect local needs and conditions. As well, up to 20% of a student's educational program may be locally developed. Schools are organized in two segments: elementary (K to 7) and secondary (8 to 12). There are three Catholic schools within the Yukon public school system. Instructional time allotments for each subject vary in the elementary grades, but are standardized to 120 hours per course for grades 8 to 12.

Approximately 27% of Yukon students are of First Nations ancestry. These students often participate in Native language programs and/or in various locally developed courses aimed at developing awareness, appreciation, and knowledge of First Nations culture and traditions. The remainder of the student population is predominantly of European or British ancestry. Approximately 6.5% of Yukon students are enrolled in a French Immersion program, while nearly 2.1% attend French school.

Mathematics Teaching

The grade 8 mathematics curriculum is divided into number and number operations (50%), data analysis (10%), geometry (20%), measurement (8%), and algebra (12%). Problem solving has no specific time allocation as problem-solving activities are integrated into the five content strands. Grade 11 mathematics is divided into four content strands: variables and equations (37%), relations and functions (25%), measurement (21%), and geometry (17%).

Mathematics Assessment

Over the past five years, a greater emphasis has been placed on problem-solving strategies and on using calculators in testing situations.

A sample of 856 students participated in the SAIP Mathematics III Assessment, representing 97% of the 13- and 16-year-olds in the territory. The sample size was relatively large because of the small population size, (the sample was, in fact, the total population of Yukon 13- and 16-year-olds).

Results for Yukon

Mathematics Content

There are significant differences between the performance of Yukon 13-year-olds and Canadian students overall at levels 1, 2, and 3 in mathematics content. Yukon 13-year-old students performed as well as students in the Canadian sample at levels 4 and 5. There are significant differences between the performance of Yukon 16-year-olds and Canadian students overall at levels 1, 2, and 5 in mathematics content. Yukon 16-year-old students performed as well as students in the Canadian sample at levels 3 and 4.

In the 2001 assessment, fewer 13-year-old students reached levels 1, 2, and 3 than in 1997. There were no significant changes in performance for 16-year-old students in mathematics content.

CHART YK1

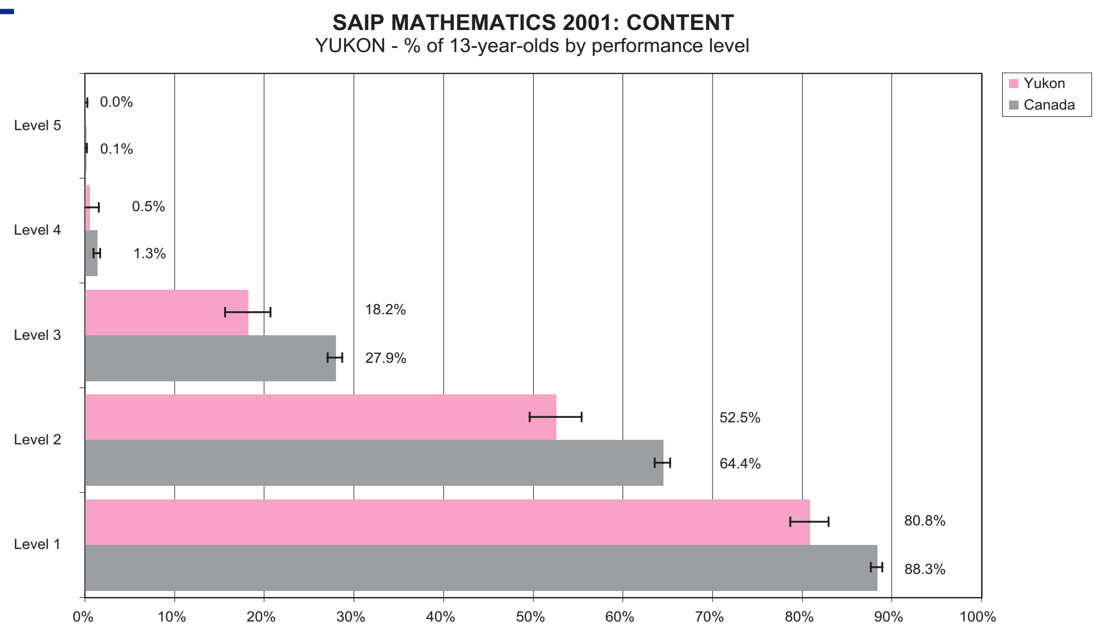
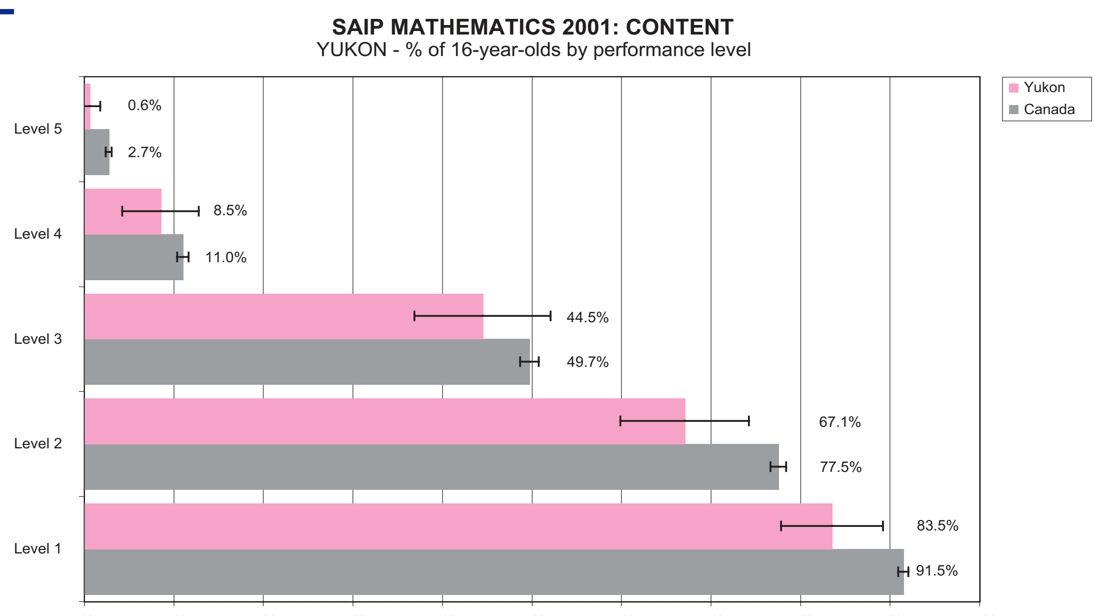


CHART YK2



Problem Solving

Yukon 13-year-old students performed as well as Canadian students overall except at level 3 in problem solving. Yukon 16-year-old students performed as well as students in the Canadian sample at levels 4 and 5. There are significant differences between the performance of Yukon 16-year-olds and Canadian students overall at levels 1, 2, and 3 in problem solving.

In the 2001 assessment, fewer 13-year-old students reached level 2 than in 1997. There were no significant changes in performance for 16-year-old students in problem solving.

CHART YK3

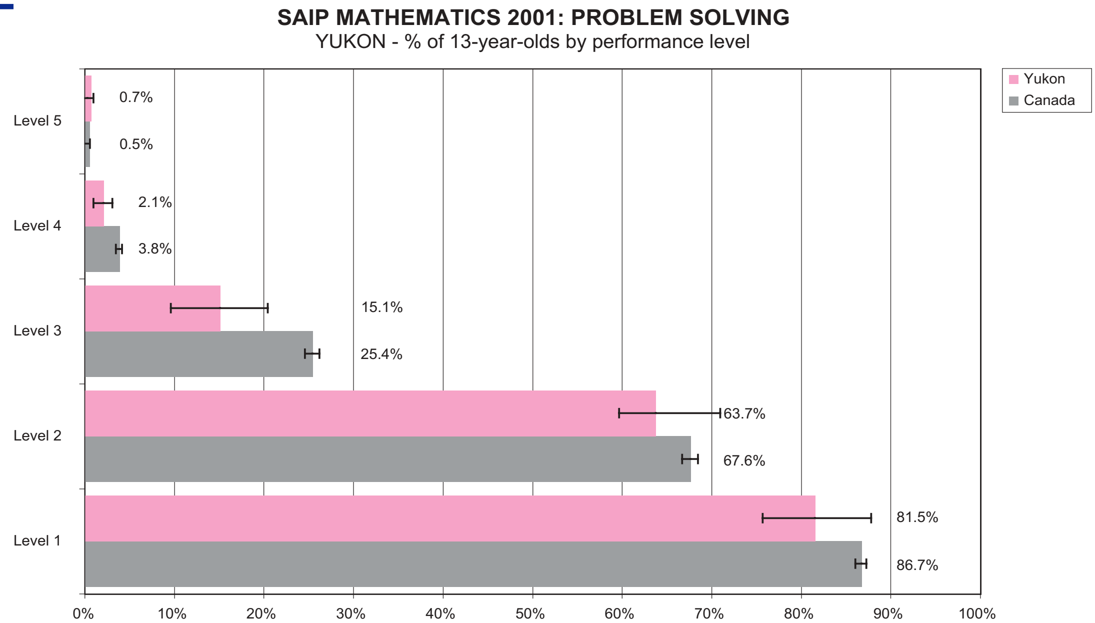
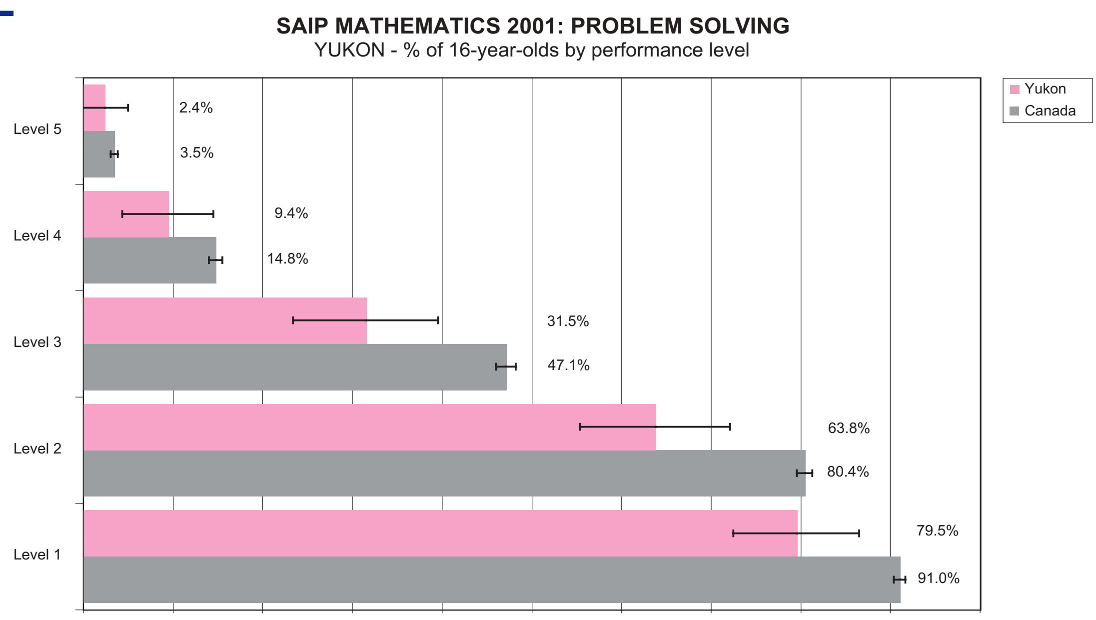


CHART YK4



Context Statement

Social Context

The Northwest Territories has a land mass of 1,171,918 square kilometres. The total population is about 42,000, approximately half of whom are Aboriginal. An estimated 2% of the total population is francophone. There are 33 communities, ranging in size from 17,500 people to 36.

Most non-Aboriginal people live in the larger communities. In Yellowknife, 78% of residents are non-Aboriginal. In smaller communities, Dene, Métis, and Inuit constitute 84% of the population. Languages spoken in the Northwest Territories are Chipewyan, Cree, Dogrib, English, French, Gwich'in, Inuinnaqtun, Inuktitut, Inuvialkton, North Slavey, and South Slavey. About half of the Aboriginal people in the Northwest Territories speak an Aboriginal language. While English is primarily the language of instruction in schools, Aboriginal languages and cultures are integral to the culture-based education system of the Northwest Territories.

Organization of the School System

In 2000–01, the Northwest Territories enrolled 9,900 students in kindergarten through grade 12 and employed 645 teachers in 49 public schools. The Department of Education, Culture and Employment provides policy and curriculum direction to eight education jurisdictions. These jurisdictions implement and adapt curriculum and develop programs in order to meet the needs of all students in their district.

In recent years, the territories have implemented grade extensions in small schools. In 1990, only 73% of students could complete their high school education in their home community. That proportion had increased to 92% by 1998–99. As a result, more students are staying in school, and more young people who left school before earning a grade 12 diploma are returning to school. The challenge is to provide a choice of quality programs in schools where as few as 1 or 2 students may be enrolled in a grade. Innovative program development, use of computer technology, and distance education support many courses offered in small communities.

Mathematics Teaching

Beginning in September 1997, the Western Canadian Protocol mathematics curriculum was implemented from kindergarten through grade 9. In each successive year, the high school mathematics curriculum was extended from grade 10 through grade 12.

Students learn by attaching meaning to what they do and by learning in context. At all grade levels, students encounter mathematical experiences that proceed from simple to complex and from concrete to abstract. This enables students to construct their own understanding of the mathematics principles and apply them to new situations. Mathematical processes and the nature of mathematics is organized and taught through four strands: number, patterns and relations, shape and space, statistics and probability.

In the early years, teachers are encouraged to use manipulatives to address the diversity of learning styles and the developmental stages of the learner. At the junior secondary level, the aim is to develop an understanding of mathematical concepts by making mathematics relevant while moving from the concrete to more abstract thought processes.

Senior secondary students (grades 10–12) may enrol in one or more of four course pathways, three of which progress through to grade 12. Students may transfer between these pathways, which are designed to meet the diverse educational needs of students with different interests and aptitudes, and to provide them with the prerequisite skills for a range of postsecondary choices.

Mathematics Assessment

Currently no assessment is done on a territory-wide basis, other than Alberta Education's grade 12 diploma examinations and SAIP. A *Student Evaluation Handbook* was developed in 1993 to assist teachers in developing a variety of assessment approaches and instruments.

The *Departmental Directive: Student Assessment, Evaluation and Reporting* was approved in the spring of 2001. This directive will be implemented throughout the Northwest Territories by June 2003. The challenge will be to establish culturally appropriate ways of measuring the success of students and programs in relation to high standards of achievement in a multilingual and multicultural environment.

Results for Northwest Territories

NOTE: In 1997, the Northwest Territories' sample included schools that are now part of the Nunavut sample.

Mathematics Content

There are significant differences between the performance of Northwest Territories 13-year-olds and Canadian students overall at levels 1, 2, and 3 in mathematics content. Northwest Territories 13-year-old students performed as well as students in the Canadian sample at levels 4 and 5. There are significant differences between the performance of Northwest Territories 16-year-olds and Canadian students overall at all levels in mathematics content.

CHART NWT1

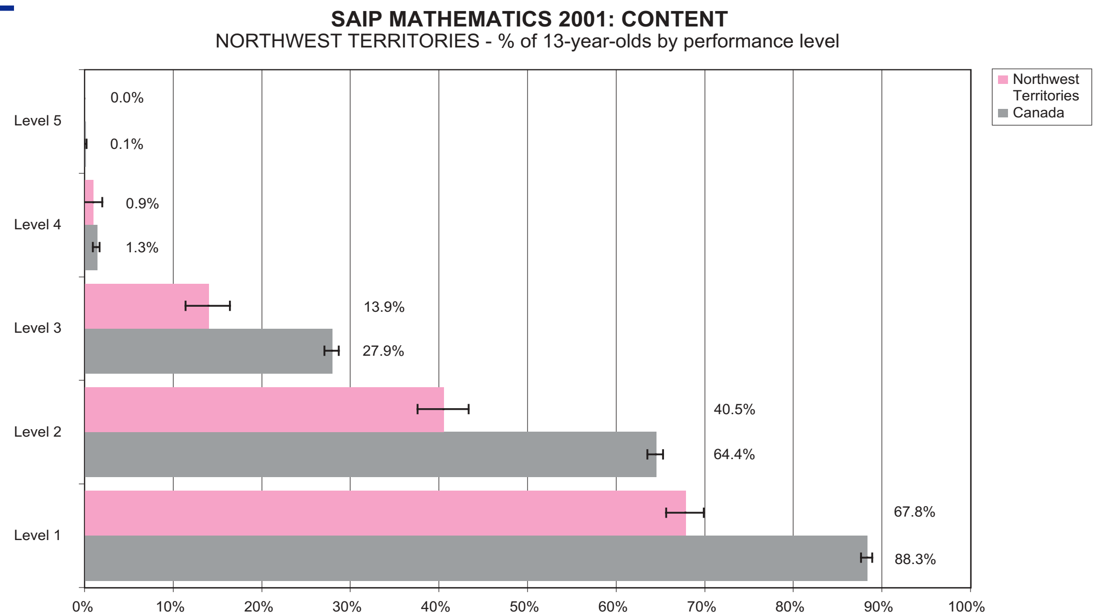
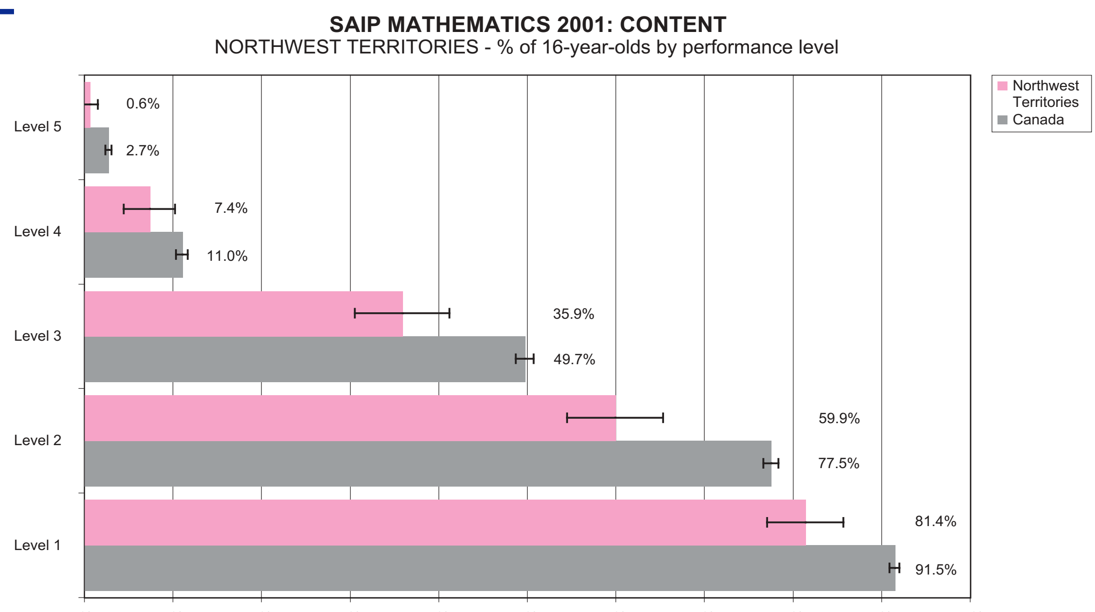


CHART NWT2



Problem Solving

There are significant differences between the performance of Northwest Territories 13-year-old and 16-year-old students and Canadian students overall at all levels in problem solving.

CHART NWT3

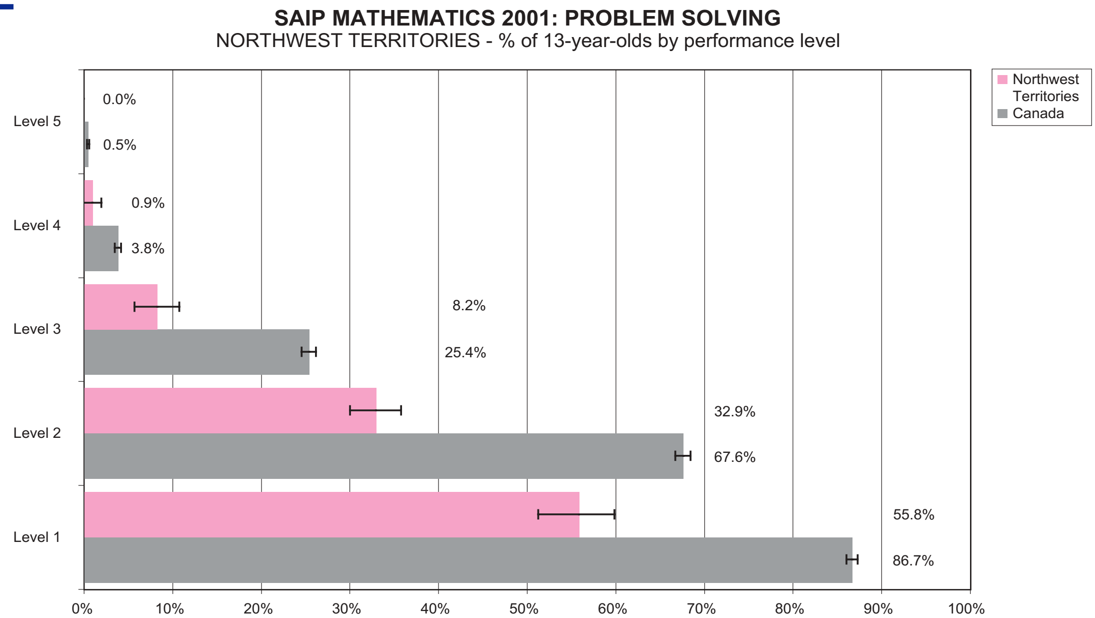
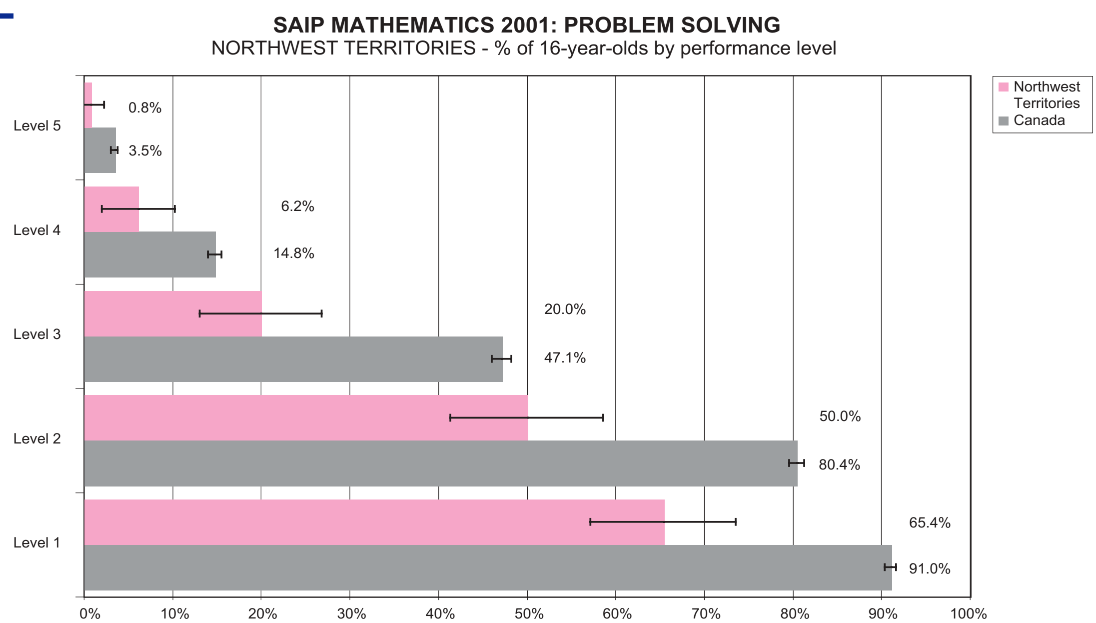


CHART NWT4



Context Statement

Social Context

Nunavut's boundaries encompass an area larger than the Maritime provinces and Quebec combined. The population of about 27,000 is dispersed among 28 widespread and diverse communities accessible only by air and water. Approximately 85% of the population is Inuit, and almost 60% is under the age of 25. While the Inuktitut language remains strong in some communities, it is rapidly being eroded by English. The major sources of employment are government and tourism; the rate of wage employment is the lowest in Canada. Although the land is rich in minerals, the cost of exploiting them both in environmental and in economic terms, is very high. Many families continue to engage in seasonal hunting and fishing activities.

Prior to 1999, Nunavut was a part of the Northwest Territories. Government systems were only two years old when Nunavut participated as the newest jurisdiction in this SAIP assessment.

The government of Nunavut has a mandate to develop a territory that reflects the traditional values and beliefs of Nunavummiut, referred to as *Inuit Qaujimajatuqangit*. Curriculum development will reflect this mandate in order to provide educational programs that are relevant to the students. In a very young system, much development lies ahead.

Organization of the School System

There are three educational administrative regions in Nunavut: the Qikiqtani (22 schools), the Kivalliq (11 schools), and the Kitikmeot (8 schools). Every community has an elected District Education Authority (DEA) that collaborates with school personnel to improve the quality and appropriateness of the education program delivered in their schools from kindergarten to grade 12. Overall enrolment is currently growing at a rapid rate of about 3% annually. In the Kivalliq and Qikiqtani regions, kindergarten to grade 3 are delivered in Inuktitut. Higher grades are also delivered in Inuktitut where there are teachers available.

Nunavut has approximately 650 teachers and 8,300 students. A large number of elementary school teachers are Inuit, but most secondary teachers are from the south. Teacher education began in Nunavut only 25 years ago and is still focused on preparing teachers for elementary schools.

It is within the past decade that secondary school programs to grade 12 have become available in all Nunavut communities. With the extension of grades has come greater enrolment and retention of students in the secondary years as well as increased graduation rates. Nunavut's largest high school would have a population of less than 400 students.

Nunavut grade 12 students write the Alberta grade 12 diploma examinations in the core content subjects. Students writing the SAIP would have been largely in grade 8 and grade 11.

Mathematics Teaching

Nunavut is a partner in the Western Canadian Protocol. The curriculum delivered in English for grades 4 to 9 is the Northwest Territories curriculum and in grades 10 to 12, the Alberta curriculum. The lack of curriculum and resources in Inuktitut, the first language of the majority of students, presents a significant challenge.

Additional challenges are created for both teaching and testing in English, which is the second language for the majority of students. Given the vast geography and time issues (three time zones), along with the very small number of support staff at regional offices, it is difficult to support teachers. As well, Nunavut is currently exploring the area of cultural relevance in its mathematics programs.

Mathematics Assessment

In grade 12, students write the Alberta grade 12 diploma examinations in Pure and Applied Mathematics. The mark obtained on the examination constitutes 50% of the final mark and the school mark awarded by the teacher constitutes the other 50%.

SAIP is the only territory-wide assessment that is conducted in Nunavut, apart from the diploma examinations mentioned above. This type of testing situation is particularly difficult for Nunavut students, and for many, this would have been their first exposure to testing of this nature.

For both language and cultural reasons, Nunavut is in a unique position in the country. These factors, coupled with the newness of Nunavut, vast geography, and very small population, present particular challenges for both students and teachers. Schools in Nunavut are in a period of rapid growth and are engaged in a struggle to create an education system that emphasizes both cultural relevance and academic excellence.

Results for Nunavut

NOTE: In 1997, Nunavut schools were part of the Northwest Territories sample.

Mathematics Content

There are significant differences between the performance in mathematics content of Nunavut students of both age groups and Canadian students overall at all levels, except for 16-year-old students at level 5.

CHART NU1

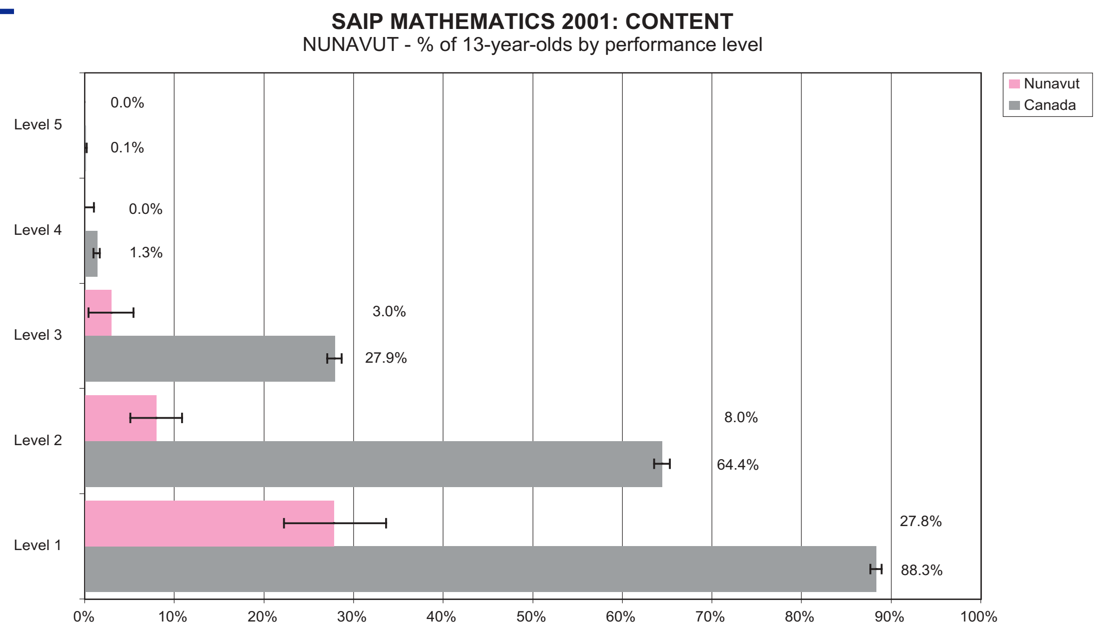
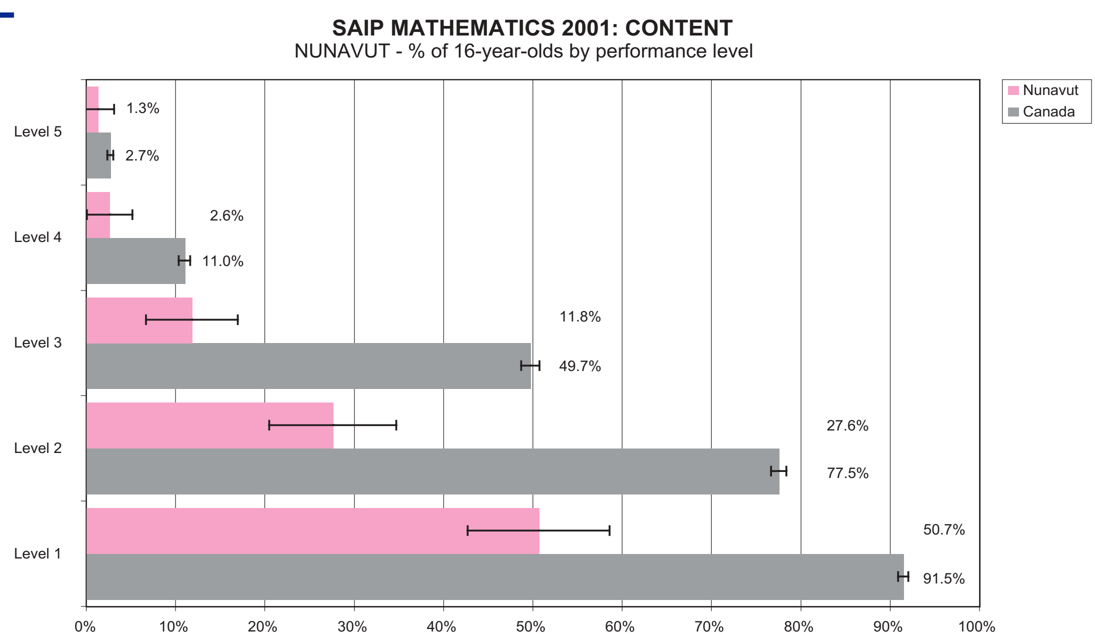


CHART NU2



Problem Solving

There are significant differences between the performance in problem solving of Nunavut students of both age groups and Canadian students overall at all levels.

CHART NU3

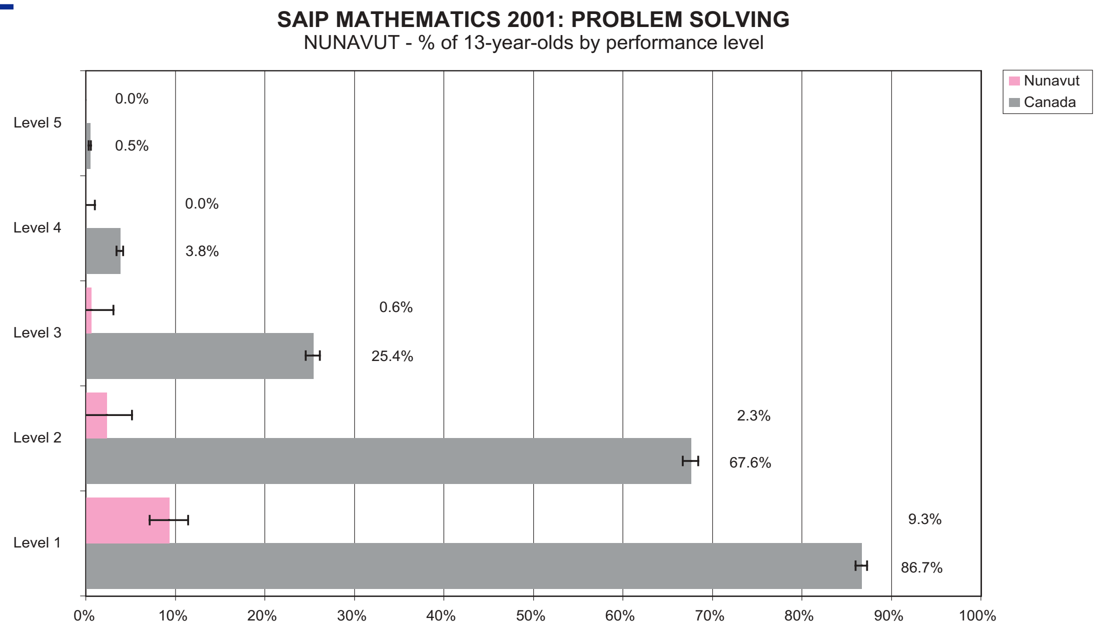
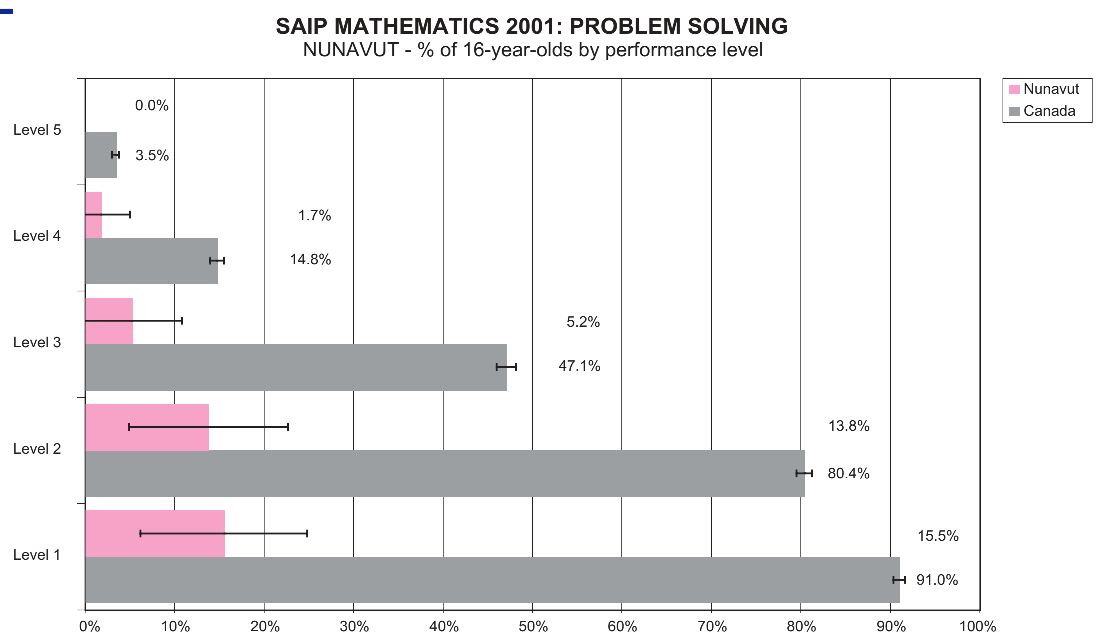


CHART NU4



CONTEXT QUESTIONNAIRES

Introduction

The value of student achievement information is greatly enhanced by linking it, as much as possible, to the context within which students live and learn. Social, educational, and personal environment all contribute to student learning and therefore to the performance on such assessments as those administered by SAIP.

Prior to the SAIP Science II Assessment (1999), such context data had been collected through questionnaires administered to the sampled students. Data so collected was then reported only briefly in the public report, and in more detail in the technical report.

For subsequent assessments, including the Mathematics III Assessment, additional context information was collected through questionnaires completed by subject teachers and by school administrators describing the school environment. While maintaining a commitment to the anonymity of individual students, teachers, and schools, researchers can use this information to examine the complex linkages between student achievement and its context, as described by students, their teachers, and the schools in which they work.

The following pages highlight *some* of the results of the questionnaires that were administered in the current assessment. Much more complete information, including jurisdictional results, will appear in *Mathematics Learning: The Canadian Context* and in the technical report. The data apply to Canada as a whole, but not necessarily to any individual jurisdiction. All figures represent percentages unless otherwise indicated. Percentages may be rounded.

Each student who participated in the Mathematics III Assessment was asked to complete a questionnaire about mathematics practices and attitudes.

The sample responses from students that follow are cross-tabulated with student achievement results. *Student responses are tabulated against the percentage of each age group that met the expected criteria for that age group, that is, level 2 for 13-year-old students and level 3 for 16-year-old students.*

It is important to note that these are simply examples of the much more detailed reporting and analysis that will be found in *Mathematics Learning: The Canadian Context* and in the technical report.

Table S-1

MATHEMATICS IN FUTURE ENDEAVOURS

Do you expect to eventually work in a field that requires further education in mathematics?

AGE		*Yes*
13-year-olds	% of students achieving below criterion*	38%
	% of students achieving at or above criterion**	51%
16-year-olds	% of students achieving below criterion#	33%
	% of students achieving at or above criterion##	53%

* That is, 38% of 13-year-old students who failed to reach level 2 expect to eventually work in a field that requires further education in mathematics.

** That is, 51% of 13-year-old students who achieved level 2 or above expect to eventually work in a field that requires further education in mathematics.

That is, 33% of 16-year-old students who failed to reach level 3 expect to eventually work in a field that requires further education in mathematics.

That is, 53% of 16-year-old students who achieved level 3 or above expect to eventually work in a field that requires further education in mathematics.

The results reported in Table S-1 suggest that students who are more successful in mathematics are more likely to aspire to work in a field that requires this particular talent.

Table S-2

In a normal week (including the weekend), how much time do you usually spend taking other lessons (e.g., music, swimming) outside of school hours?

AGE		*One hour or more per week*
13-year-olds	% of students achieving below criterion	47%
	% of students achieving at or above criterion	55%
16-year-olds	% of students achieving below criterion	34%
	% of students achieving at or above criterion	43%

Table S-2 suggests that more successful mathematics students spend more time participating in extracurricular learning activities.

Table S-3

In a normal week (including the weekend), how much time do you usually spend studying or doing homework in mathematics outside of school hours?

AGE		*One hour or more per week*
13-year-olds	% of students achieving below criterion	48%
	% of students achieving at or above criterion	57%
16-year-olds	% of students achieving below criterion	47%
	% of students achieving at or above criterion	63%

Table S-3 suggests that more successful mathematics students, particularly in more senior courses, spend more time working on mathematics outside of school hours.

Table S-4

In a normal week (including the weekend), how much time do you usually spend studying or doing homework in other subjects outside of school hours?

AGE		*One hour or more per week*
13-year-olds	% of students achieving below criterion	59%
	% of students achieving at or above criterion	72%
16-year-olds	% of students achieving below criterion	69%
	% of students achieving at or above criterion	82%

The information in Table S-4 suggests that older students generally spend more time studying and doing homework, and that more successful mathematics students spend more time than do less successful students.

Table S-5

In a normal week (including the weekend), how much time do you usually spend reading for enjoyment outside of school hours?

AGE		*One hour or more per week*
13-year-olds	% of students achieving below criterion	35%
	% of students achieving at or above criterion	48%
16-year-olds	% of students achieving below criterion	39%
	% of students achieving at or above criterion	49%

Table S-5 illustrates the positive relationship between reading for enjoyment and mathematics achievement.

Table S-6

How often do you and your parent(s) or guardian(s) work together on your mathematics homework?

AGE		*"Almost every day" to "a few times a week"*
13-year-olds	% of students achieving below criterion	28%
	% of students achieving at or above criterion	16%
16-year-olds	% of students achieving below criterion	10%
	% of students achieving at or above criterion	5%

Table S-6 shows that less successful mathematics students seem to work more often with parents and guardians, perhaps in an effort to increase their success rate.

Table S-7

How often is the Internet used in your mathematics courses this year?

AGE		*"Almost every day" to "a few times a week"*
13-year-olds	% of students achieving below criterion	15%
	% of students achieving at or above criterion	7%
16-year-olds	% of students achieving below criterion	8%
	% of students achieving at or above criterion	4%

Table S-7 shows that the Internet is rarely used in mathematics courses, but perhaps students with difficulties are encouraged to search there for additional resources.

Table S-8

Do you have these things in your home? - computer

AGE		*Yes*
13-year-olds	% of students achieving below criterion	88%
	% of students achieving at or above criterion	93%
16-year-olds	% of students achieving below criterion	89%
	% of students achieving at or above criterion	96%

Overall data for this question show that 92.8 % of all students who responded report having a computer at home. Table S-8 shows that home computers are slightly more common in the homes of students who met the SAIP Mathematics criteria.

Table S-9

Do you have these things in your home? - Internet connection

AGE		*Yes*
13-year-olds	% of students achieving below criterion	74%
	% of students achieving at or above criterion	85%
16-year-olds	% of students achieving below criterion	78%
	% of students achieving at or above criterion	88%

Overall data for this question show that 83.2% of all students who responded report having an Internet connection at home. Table S-9 shows that Internet connections are slightly more common in the homes of students who met the SAIP Mathematics criteria.

Introduction

Approximately 5,400 responses were received to this questionnaire, which was addressed to teachers of the students who were selected to write the SAIP Mathematics III Assessment. The information collected deals with the work of the teachers and their approach to mathematics teaching.

As with the other questionnaire data, complete findings will be available in *Mathematics Learning: The Canadian Context* and in the technical report.

Selected Data

The information below was selected for inclusion in the public report to provide some indication of the types of questions asked and a range of the responses to them.

Note: The median is the value of the middle element of a set of responses, the element that equal numbers of responses are below and above.

For example, when asked how many hours per week they were scheduled to teach mathematics classes, teachers indicated that the median was 5.5 hours; in other words, half of the teachers responding reported 5.5 hours or fewer, and half reported 5.5 hours or more.

Table T-1

CLASS SIZE

What is the AVERAGE number of students in the mathematics classes you teach this year?

Median size is 24 students; 94% of teachers reported an average of 31 or fewer students.

LARGEST class size

Median size is 27 students; 10% of teachers reported a largest class of more than 33 students.

SMALLEST class size

Median size is 19 students; 80% of teachers reported a smallest class of 25 or fewer students.

Most classes appear to have between 25 and 33 students, although a few teachers reported classes as small as 8 students and as large as 40 students.

WORK OUTSIDE OF SCHOOL HOURS

Table T-2

How many hours per week do you spend on PLANNING AND PREPARATION outside of formal school hours?

	%
No time	0.2
Less than 1 hr.	1.8
1–2 hrs.	17.7
3–4 hrs.	28.2
5–6 hrs.	21.2
More than 6 hrs.	30.8

Table T-3

How many hours per week do you spend on MARKING STUDENT WORK outside of formal school hours?

	%
No time	0.2
Less than 1 hr.	2.7
1–2 hrs.	26.5
3–4 hrs.	37.0
5–6 hrs.	17.6
More than 6 hrs.	15.9

Table T-4

How many hours per week do you spend on ADMINISTRATIVE DUTIES outside of formal school hours?

	%
No time	23.6
Less than 1 hr.	33.5
1–2 hrs.	29.5
3–4 hrs.	7.7
5–6 hrs.	2.1
More than 6 hrs.	3.6

Teachers report spending a significant part of their out-of-school time planning and preparing lessons and marking student work. More than 80% of the teachers reported spending 3 hours or more per week planning lessons, and more than 70% spend 3 hours or more per week marking.

Table T-5

CLASSROOM STRATEGIES

How often do the following things happen in your mathematics classes?

The following figures represent the percentages of teachers who reported either "a few times a week" or "almost every class" on a four-point scale for selected categories.

I give overviews.	56%
I model how to solve problems for students.	92%
I teach a variety of problem-solving strategies.	66%
Students work in pairs or small groups.	57%
Students work on assigned exercises from the textbook.	91%
I give feedback to the class on assignments, tests, or other evaluations.	62%
I attempt to diagnose and address individual student problems or needs in learning.	71%
Students use workbooks or worksheets.	59%
I read from or summarize the textbook.	40%
I work with students individually.	90%
We discuss or do things other than the topic of the lesson.	34%

This table shows that teachers use a wide variety of teaching strategies in the classroom. Most frequently reported are modelling how to solve problems and having students work on assigned exercises. Perhaps this allows more classroom time for the other most common strategy — working with individual students.

Table T-6

ASSESSMENT STRATEGIES

The following figures represent the percentages of teachers who reported either "quite a lot" or "a great deal" on a four-point scale for selected categories.

In assessing the work of students in your mathematics courses, how much weight do you give each of the following?

Standardized tests produced outside the school	16%
Teacher-made short answer or essay tests that require students to explain their reasoning	53%
Teacher-made multiple-choice, true-false, or matching tests	24%
Homework assignments	43%
Projects	15%
Portfolios of student work	11%
Observations of or interviews with students	17%
Attendance in class	21%
Participation of students in class activities	28%
Effort	37%
Improvement over the year or term	34%
Student self-assessment	9%
Peer evaluation	3%
Independent study projects	7%
Other	20%

Again, as one would expect, this table shows that teachers use a great variety of assessment strategies.

Some particularly interesting data:

- *About 16% of teachers give weight to external standardized tests when assessing students.*
- *About 34% give weight to improvement over year or term.*
- *About 17% give weight to observations or interviews with students.*
- *About 7% give weight to independent study projects.*

Table T-7

TEACHER QUALIFICATIONS

Which of the following degrees or diplomas do you hold?

(Teachers were asked to check all that apply.)

B.A., B.Sc., or equivalent in mathematics	32.0%
B.Sc. or equivalent in a subject other than mathematics	22.0%
B.A. or equivalent in a subject other than mathematics	23.0%
Other degree with substantial mathematics content (e.g., engineering or computer science)	7.4%
B.Ed. or equivalent (e.g., at least one year of teacher training)	82.0%
Special Education diploma/certificate	5.5%
Special Education degree	1.5%
Trade or technical diploma or equivalent	3.2%
Master's degree in education	11.0%
Master's degree in another subject	4.8%
Ph.D. or equivalent	0.8%
Other degree or diploma	13.0%
No degree or diploma	0.4%

This table contains some interesting data. Less than 40% of teachers hold a mathematics degree or one with substantial mathematics content. Almost 20% have less than one year of teacher training. Less than 10% hold special education qualifications.

Introduction

Approximately 1,700 responses were received to this questionnaire, which was addressed to the school principal. The information collected deals with the nature of the community, the school itself, and the resources available.

As with the other questionnaire data, detailed information will be available in *Mathematics Learning: The Canadian Context, 2001* and in the technical report.

Selected Data

The information below was selected for inclusion in the public report to provide some indication of the types of questions asked and a range of the responses to them.

Table P-1

Approximately what percentage of students in your school would you estimate have a first language other than the language of the school?

Percentage of students with a first language other than the language of the school	*Percentage of schools with the given percentage of students*		
	Language of the school		
	English	*French*	*Total*
Less than 10%	79.8%	65.8%	77.0%
10–25%	10.3%	12.0%	10.6%
More than 25%	10.0%	22.2%	12.4%

Table P-2

What percentage of students have learning problems that need special attention?

Students with learning problems	*% of schools with the given percentage of students*
Less than 10%	46.2
10–25%	46.0
More than 25%	7.8

Table P-3

What percentage of students come from single-parent families?

Students from single-parent families	*% of schools with the given percentage of students*
Less than 10%	31.1
10–25%	50.8
More than 25%	18.1

Table P-4

What percentage of students have health or nutrition problems that inhibit learning?

Students with health or nutrition problems	*% of schools with the given percentage of students*
Less than 10%	77.5
10–25%	17.5
More than 25%	5.0

Nearly one-quarter of the schools reported more than 10% of their students having a first language other than that of the school. More than one-half of the schools reported that more than 10% of their students need special attention. Nearly 70% of the schools reported that more than 10% of their students come from single-parent families, and nearly one-quarter of the schools reported that more than 10% of their students have health or nutrition problems.

Table P-5

Principals were asked to what degree the school's capacity to provide instruction is limited by the following:

The following figures represent the percentages of principals who reported either "some" or "a lot" on a four-point scale for *selected* categories.

a)	Lack of parental support for the school	28%
b)	Range of student abilities in the school	56%
c)	Students' home background	48%
d)	Community conditions (e.g., language, migration)	28%
e)	Bussing of students	22%

Table P-6

Principals were asked to what degree the school's capacity to provide instruction is limited by shortage or inadequacy of the following:

The following figures represent the percentages of principals who reported either "some" or "a lot" on a four-point scale for *selected* categories.

a)	Teachers specialized in mathematics	30%
b)	Instructional materials (e.g., textbooks)	30%
c)	Numbers of computers for mathematics teaching	47%
d)	Calculators for mathematics teaching	24%
e)	Manipulative materials for mathematics teaching	25%
f)	Library resources for mathematics teaching	29%

The importance of close relations between schools and their communities and the need for resources of all types are highlighted in the above tables. Again, complete findings will be available in Mathematics Learning: The Canadian Context *and in the technical report.*

Table P-7

Principals were asked to what extent they agree with a series of statements.

The following percentages represent those principals who "agreed" or "agreed strongly" on a four-point scale.

• There are limits to what a school can accomplish because a student's home environment has a large influence on achievement.	76%
• Students can achieve high levels if they work hard.	94%
• High school students should be streamed into different programs based on their abilities and aptitudes.	84%
• Students can achieve high levels if they are taught well.	93%
• Student ability has a large influence on achievement.	93%
• This school is supported by the community.	90%
• Staff morale is high in this school.	89%
• There is a strong school spirit in this school.	87%
• Students and staff take pride in this school.	96%

A majority of principals appear confident that they are providing supportive learning environments for their students, at least in terms of the issues addressed in this table.

Table P-8

What is the approximate average class size in your mathematics classes for 13-year-olds?

	% of schools
Less than 10	5.5
10–14	7.0
15–19	12.5
20–24	25.8
25–29	35.4
30–33	12.8
34 or more	1.1

Table P-9

What is the approximate average class size in your mathematics classes for 16-year-olds?

	% of schools
Less than 10	6.0
10-14	10.0
15-19	14.6
20-24	26.7
25-29	32.4
30-33	9.4
34 or more	0.9

Half of the principals report class sizes for 13-year-old students of 24 or fewer. Nearly 60% report classes of 24 or fewer for 16-year-old students.

This report describes the performance of 41,000 English- and French-speaking 13- and 16-year-old Canadian students in the SAIP Mathematics III Assessment (2001). For some jurisdictions, the sample included a number of students for whom neither English nor French is spoken at home. This pan-Canadian mathematics assessment is the first of the three SAIP subject assessments to be administered for the third time using essentially the same process, but following an extensive review of the framework and criteria and of the instruments themselves.

The assessment instruments were designed, developed, and reviewed by representatives of the ten provinces and the three territories, working together under the leadership of the development team. This assessment was also made possible by the cooperation extended to the development teams by students, teachers, parents, and stakeholder representatives.

In spite of the diversity of student circumstances and education experiences across the country, this challenging exercise nevertheless produced a comprehensive assessment of important mathematical knowledge and skills.

In both the assessment of mathematics content and the assessment of problem solving, roughly two-thirds of 13-year-old students reached level 2, and nearly half of 16-year-old students reached level 3.

Given that 13-year-olds and 16-year-olds are administered the same assessment, the SAIP designers thought that the largest proportion of the younger group would achieve level 2 and that the largest proportion of the older group would achieve level 3. A sizeable percentage of 13-year-old students reached level 3 and above and more than 10% of 16-year-old students acheived at levels 4 and 5 in each component. This performance represents a high level of mathematics knowledge and skills for students in each age group.

Both in mathematics content and in problem solving, the highest level achieved by many students was level 3, the middle of a five-level scale. To be assigned level 3 in mathematics content, a student had to show that he or she could, for example,

- use the four basic operations with natural numbers and integers
- use concrete materials and diagrams to represent relations
- use monomial algebraic expressions and plot points on a Cartesian grid
- use length, angle measure, area, volume, and repetitions of the same geometric transformation
- extract and represent data using tables and diagrams
- use information from various sources and calculate arithmetic mean and simple probabilities

To be assigned level 3 in problem solving, a student had to show that he or she could

- use more than one particular case to establish a proof
- choose from two algorithms to find solutions to multi-step problems, using a limited range of rational numbers
- use necessary and sufficient cases to establish a proof
- use mathematical vocabulary imprecisely to present solutions

Although these definitions may seem technical, they were developed by mathematics and curriculum specialists in order to set out specifically the concepts underlying the design of the tests and the evaluation of the results.

Changes are varied in student performance for mathematics content between 1997 and 2001. In 2001, fewer 13-year-old students achieved level 1, but more 13-year-old students performed at level 2. More 16-year-old students achieved level 2 than in 1997, but fewer 16-year-olds reached levels 1 and 3. Results for problem solving in 2001 showed considerable improvement since 1997. In both age groups, more students achieved levels 2, 3, 4, and 5 than in 1997. This change was particularly marked for 13-year-old students. Quebec 16-year-old students did not participate in the 2001 assessment.

There were small but seemingly unsystematic differences in the achievement levels of males and females in both the mathematics content assessment and the problem solving assessment.

Some differences in performance can be observed between students who responded to the assessment in French and those who responded in English. Since Quebec 16-year-old students did not participate in the 2001 assessment, it is difficult to reach any generalizable conclusions.

In 2001, a pan-Canadian panel of representatives of various sectors of society developed a set of expectations to help interpret the results actually achieved by the students. The expectations of the panellists for student performance were consistently higher than that actually achieved by Canadian students. Expectations were more closely met at higher performance levels than at lower performance levels.

In this assessment again, 16-year-olds performed much better than 13-year-olds. Although this finding will come as no surprise, this process makes it possible to measure and document with reliable statistics the achievement gap in mathematics between those age groups across Canada. We can at least infer that our educational systems do foster the development of mathematics knowledge and skills between the ages of 13 and 16.

Comparisons between the mathematics content and the problem solving component results should only be attempted with caution. While students may appear to have achieved higher or lower scores in problem solving than in mathematics content, this may not be significant since different criteria were used in the two assessments, and it is impossible to equate the degree of difficulty of the questions contained in each component.

Results from, and expectations established for, the 2001 assessment will serve as points of comparison for the next mathematics assessment.

APPENDIX

Note: Quebec 16-year-old students did not participate in the assessment. This must be taken into consideration when comparing jurisdictional results with those of Canada.

DATA TABLES

TABLE 1: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF STUDENTS BY PERFORMANCE LEVEL AND BY AGE

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
13-year-olds	11.7	(0.6)	23.9	(0.7)	36.5	(0.8)	26.6	(0.8)	1.2	(0.2)	0.1	(0.1)
			88.3	(0.6)	64.4	(0.8)	27.9	(0.8)	1.3	(0.2)	0.1	(0.1)
16-year-olds	8.5	(0.6)	13.9	(0.7)	27.8	(0.9)	38.7	(1.0)	8.3	(0.6)	2.7	(0.3)
			91.5	(0.6)	77.5	(0.9)	49.7	(1.0)	11.0	(0.6)	2.7	(0.3)

Note: For each age group, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 2: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF 13-YEAR-OLDS BY PERFORMANCE LEVEL AND BY GENDER

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
Female	11.9	(0.8)	23.3	(1.0)	37.8	(1.2)	26.0	(1.1)	1.0	(0.2)	0.0	(0.0)
			88.1	(0.8)	64.8	(1.2)	26.9	(1.1)	1.0	(0.2)	0.0	(0.0)
Male	11.2	(0.8)	24.6	(1.1)	35.2	(1.2)	27.2	(1.1)	1.5	(0.3)	0.2	(0.1)
			88.8	(0.8)	64.2	(1.2)	29.0	(1.1)	1.7	(0.3)	0.2	(0.1)
No Information	44.1	(13.0)	2.3	(4.0)	32.6	(12.3)	20.9	(10.7)	0.0	(0.0)	0.0	(0.0)
			55.9	(12.9)	53.5	(12.9)	20.9	(10.6)	0.0	(0.0)	0.0	(0.0)

Note: For each gender, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 3: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF 16-YEAR-OLDS BY PERFORMANCE LEVEL AND BY GENDER

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
Female	7.8	(0.8)	14.2	(1.0)	30.3	(1.3)	37.8	(1.4)	8.2	(0.8)	1.7	(0.4)
			92.2	(0.8)	78.0	(1.2)	47.7	(1.4)	9.9	(0.9)	1.7	(0.4)
Male	7.6	(0.8)	13.9	(1.0)	25.8	(1.3)	40.3	(1.4)	8.5	(0.8)	3.8	(0.6)
			92.4	(0.8)	78.4	(1.2)	52.6	(1.5)	12.3	(1.0)	3.8	(0.6)
No Information	57.5	(11.0)	7.2	(5.7)	15.2	(8.0)	15.5	(8.0)	4.6	(4.6)	0.0	(0.0)
			42.5	(10.9)	35.3	(10.5)	20.1	(8.8)	4.6	(4.6)	0.0	(0.0)

Note: For each gender, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 4: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF 13-YEAR-OLDS BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	13.1	(2.0)	26.2	(2.6)	36.0	(2.8)	23.4	(2.5)	1.3	(0.7)	0.1	(0.2)
			86.9	(2.0)	60.7	(2.9)	24.8	(2.5)	1.4	(0.7)	0.1	(0.2)
Alberta	9.3	(1.9)	20.0	(2.6)	37.5	(3.2)	30.9	(3.1)	1.9	(0.9)	0.3	(0.4)
			90.7	(1.9)	70.6	(3.0)	33.1	(3.1)	2.3	(1.0)	0.3	(0.4)
Saskatchewan	17.3	(2.4)	30.6	(2.9)	34.4	(3.0)	17.5	(2.4)	0.2	(0.3)	0.0	(0.0)
			82.7	(2.4)	52.1	(3.1)	17.7	(2.4)	0.2	(0.3)	0.0	(0.0)
Manitoba (E)	16.2	(2.3)	26.6	(2.7)	35.8	(3.0)	21.0	(2.5)	0.4	(0.4)	0.0	(0.0)
			83.8	(2.3)	57.2	(3.0)	21.4	(2.5)	0.4	(0.4)	0.0	(0.0)
Manitoba (F)	11.5	(2.6)	29.3	(3.7)	35.1	(3.9)	23.9	(3.5)	0.0	(0.0)	0.2	(0.3)
			88.5	(2.6)	59.2	(4.0)	24.1	(3.5)	0.2	(0.3)	0.2	(0.3)
Ontario (E)	9.7	(2.0)	26.9	(3.0)	38.2	(3.3)	23.8	(2.9)	1.3	(0.8)	0.1	(0.2)
			90.3	(2.0)	63.4	(3.3)	25.3	(3.0)	1.5	(0.8)	0.1	(0.2)
Ontario (F)	15.2	(3.1)	28.5	(3.9)	31.5	(4.0)	23.6	(3.7)	1.2	(0.9)	0.0	(0.0)
			84.8	(3.1)	56.3	(4.3)	24.8	(3.8)	1.2	(0.9)	0.0	(0.0)
Quebec (E)	11.8	(2.2)	21.6	(2.7)	31.5	(3.1)	33.5	(3.2)	1.5	(0.8)	0.1	(0.2)
			88.2	(2.2)	66.6	(3.1)	35.1	(3.2)	1.6	(0.8)	0.1	(0.2)
Quebec (F)	10.3	(2.0)	14.8	(2.3)	35.7	(3.2)	38.1	(3.2)	1.1	(0.7)	0.0	(0.0)
			89.7	(2.0)	74.9	(2.9)	39.2	(3.2)	1.1	(0.7)	0.0	(0.0)
New Brunswick (E)	17.7	(2.5)	30.3	(3.0)	33.2	(3.1)	17.6	(2.5)	1.1	(0.7)	0.0	(0.0)
			82.3	(2.5)	51.9	(3.2)	18.7	(2.5)	1.1	(0.7)	0.0	(0.0)
New Brunswick (F)	16.2	(2.5)	26.2	(3.0)	34.2	(3.2)	22.8	(2.9)	0.6	(0.5)	0.0	(0.0)
			83.8	(2.5)	57.6	(3.4)	23.4	(2.9)	0.6	(0.5)	0.0	(0.0)
Nova Scotia (E)	18.2	(2.6)	34.1	(3.1)	36.2	(3.2)	11.4	(2.1)	0.1	(0.2)	0.0	(0.0)
			81.8	(2.6)	47.7	(3.3)	11.6	(2.1)	0.1	(0.2)	0.0	(0.0)
Nova Scotia (F)	10.0	(5.2)	41.5	(8.5)	30.0	(7.9)	17.7	(6.6)	0.8	(1.5)	0.0	(0.0)
			90.0	(5.2)	48.5	(8.6)	18.5	(6.7)	0.8	(1.5)	0.0	(0.0)
Prince Edward Island	19.5	(3.0)	27.8	(3.4)	40.6	(3.8)	11.8	(2.5)	0.2	(0.3)	0.2	(0.3)
			80.5	(3.0)	52.7	(3.8)	12.2	(2.5)	0.3	(0.5)	0.2	(0.3)
Newfoundland and Labrador	18.2	(2.9)	24.7	(3.2)	35.8	(3.6)	19.3	(3.0)	1.8	(1.0)	0.3	(0.4)
			81.8	(2.9)	57.1	(3.7)	21.3	(3.1)	2.0	(1.1)	0.3	(0.4)
Yukon	19.2	(5.5)	28.3	(6.3)	34.3	(6.6)	17.7	(5.3)	0.5	(1.0)	0.0	(0.0)
			80.8	(5.5)	52.5	(7.0)	18.2	(5.4)	0.5	(1.0)	0.0	(0.0)
Northwest Territories	32.2	(4.0)	27.3	(3.8)	26.6	(3.8)	13.0	(2.9)	0.9	(0.8)	0.0	(0.0)
			67.8	(4.0)	40.5	(4.2)	13.9	(2.9)	0.9	(0.8)	0.0	(0.0)
Nunavut	72.2	(4.8)	19.8	(4.3)	5.0	(2.3)	3.0	(1.8)	0.0	(0.0)	0.0	(0.0)
			27.8	(4.8)	8.0	(2.9)	3.0	(1.8)	0.0	(0.0)	0.0	(0.0)
CANADA	11.7	(0.6)	23.9	(0.7)	36.5	(0.8)	26.6	(0.8)	1.2	(0.2)	0.1	(0.1)
			88.3	(0.6)	64.4	(0.8)	27.9	(0.8)	1.3	(0.2)	0.1	(0.1)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 5: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF 16-YEAR-OLDS BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	7.4	(1.7)	17.7	(2.5)	28.6	(3.0)	36.2	(3.2)	7.3	(1.7)	2.9	(1.1)
			92.6	(1.7)	74.9	(2.9)	46.4	(3.3)	10.2	(2.0)	2.9	(1.1)
Alberta	6.4	(1.9)	9.3	(2.3)	23.8	(3.4)	41.6	(3.9)	13.0	(2.7)	5.9	(1.9)
			93.6	(1.9)	84.3	(2.9)	60.5	(3.9)	18.9	(3.1)	5.9	(1.9)
Saskatchewan	8.1	(1.8)	17.4	(2.5)	32.2	(3.1)	35.0	(3.1)	6.1	(1.6)	1.3	(0.8)
			91.9	(1.8)	74.6	(2.9)	42.4	(3.2)	7.4	(1.7)	1.3	(0.8)
Manitoba (E)	10.3	(2.0)	15.4	(2.4)	25.4	(2.9)	37.7	(3.2)	8.9	(1.9)	2.3	(1.0)
			89.7	(2.0)	74.3	(2.9)	48.9	(3.3)	11.2	(2.1)	2.3	(1.0)
Manitoba (F)	3.4	(1.8)	9.9	(3.0)	23.5	(4.3)	49.9	(5.0)	11.2	(3.2)	2.1	(1.4)
			96.6	(1.8)	86.7	(3.4)	63.2	(4.8)	13.3	(3.4)	2.1	(1.4)
Ontario (E)	8.5	(2.0)	13.2	(2.5)	27.7	(3.3)	39.9	(3.6)	8.3	(2.0)	2.4	(1.1)
			91.5	(2.0)	78.3	(3.0)	50.6	(3.7)	10.7	(2.3)	2.4	(1.1)
Ontario (F)	12.3	(2.7)	14.8	(2.9)	31.3	(3.8)	36.6	(4.0)	4.0	(1.6)	1.1	(0.8)
			87.7	(2.7)	72.9	(3.7)	41.7	(4.1)	5.1	(1.8)	1.1	(0.8)
New Brunswick (E)	10.4	(2.1)	12.5	(2.3)	34.1	(3.3)	35.3	(3.3)	5.6	(1.6)	2.0	(1.0)
			89.6	(2.1)	77.1	(2.9)	42.9	(3.4)	7.6	(1.8)	2.0	(1.0)
New Brunswick (F)	9.2	(2.1)	12.0	(2.4)	28.1	(3.3)	43.0	(3.6)	6.8	(1.8)	0.8	(0.7)
			90.8	(2.1)	78.8	(3.0)	50.6	(3.6)	7.6	(1.9)	0.8	(0.7)
Nova Scotia (E)	9.5	(2.0)	16.5	(2.6)	30.9	(3.2)	36.1	(3.4)	5.7	(1.6)	1.4	(0.8)
			90.5	(2.0)	74.1	(3.1)	43.2	(3.5)	7.1	(1.8)	1.4	(0.8)
Nova Scotia (F)	9.4	(5.6)	15.1	(6.8)	19.8	(7.6)	44.3	(9.5)	10.4	(5.8)	0.9	(1.8)
			90.6	(5.6)	75.5	(8.2)	55.7	(9.5)	11.3	(6.0)	0.9	(1.8)
Prince Edward Island	11.9	(2.7)	15.6	(3.0)	29.3	(3.8)	37.3	(4.0)	5.4	(1.9)	0.5	(0.6)
			88.1	(2.7)	72.5	(3.7)	43.2	(4.1)	6.0	(2.0)	0.5	(0.6)
Newfoundland and Labrador	16.9	(2.9)	16.6	(2.9)	30.4	(3.5)	31.8	(3.6)	3.2	(1.4)	1.1	(0.8)
			83.1	(2.9)	66.4	(3.6)	36.0	(3.7)	4.3	(1.5)	1.1	(0.8)
Yukon	16.5	(5.7)	16.5	(5.7)	22.6	(6.4)	36.0	(7.4)	7.9	(4.1)	0.6	(1.2)
			83.5	(5.7)	67.1	(7.2)	44.5	(7.6)	8.5	(4.3)	0.6	(1.2)
Northwest Territories	18.6	(4.3)	21.5	(4.6)	24.0	(4.7)	28.5	(5.0)	6.7	(2.8)	0.6	(0.9)
			81.4	(4.3)	59.9	(5.4)	35.9	(5.3)	7.4	(2.9)	0.6	(0.9)
Nunavut	49.3	(8.0)	23.0	(6.7)	15.8	(5.8)	9.2	(4.6)	1.3	(1.8)	1.3	(1.8)
			50.7	(7.9)	27.6	(7.1)	11.8	(5.1)	2.6	(2.5)	1.3	(1.8)
CANADA	8.5	(0.6)	13.9	(0.7)	27.8	(0.9)	38.7	(1.0)	8.3	(0.6)	2.7	(0.3)
			91.5	(0.6)	77.5	(0.9)	49.7	(1.0)	11.0	(0.6)	2.7	(0.3)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 6: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF 13-YEAR-OLD FEMALES BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	12.9	(2.9)	27.8	(3.8)	36.2	(4.1)	22.3	(3.5)	0.8	(0.7)	0.0	(0.0)
			87.1	(2.9)	59.3	(4.2)	23.1	(3.6)	0.8	(0.7)	0.0	(0.0)
Alberta	7.2	(2.5)	20.0	(3.8)	40.3	(4.7)	30.8	(4.4)	1.7	(1.2)	0.0	(0.0)
			92.8	(2.5)	72.8	(4.3)	32.5	(4.5)	1.7	(1.2)	0.0	(0.0)
Saskatchewan	17.3	(3.3)	30.0	(4.0)	37.1	(4.2)	15.5	(3.2)	0.2	(0.4)	0.0	(0.0)
			82.7	(3.3)	52.8	(4.4)	15.7	(3.2)	0.2	(0.4)	0.0	(0.0)
Manitoba (E)	15.3	(3.2)	28.0	(4.0)	35.1	(4.3)	20.8	(3.6)	0.8	(0.8)	0.0	(0.0)
			84.7	(3.2)	56.7	(4.4)	21.6	(3.7)	0.8	(0.8)	0.0	(0.0)
Manitoba (F)	14.7	(3.9)	31.1	(5.1)	34.3	(5.3)	19.9	(4.4)	0.0	(0.0)	0.0	(0.0)
			85.3	(3.9)	54.2	(5.5)	19.9	(4.4)	0.0	(0.0)	0.0	(0.0)
Ontario (E)	11.8	(3.0)	25.4	(4.1)	38.8	(4.6)	23.1	(4.0)	0.9	(0.9)	0.0	(0.0)
			88.2	(3.0)	62.8	(4.6)	24.0	(4.0)	0.9	(0.9)	0.0	(0.0)
Ontario (F)	11.1	(3.9)	28.9	(5.6)	36.8	(6.0)	22.9	(5.2)	0.4	(0.8)	0.0	(0.0)
			88.9	(3.9)	60.1	(6.0)	23.3	(5.2)	0.4	(0.8)	0.0	(0.0)
Quebec (E)	13.9	(3.3)	23.2	(4.0)	32.3	(4.4)	29.2	(4.3)	1.2	(1.0)	0.2	(0.5)
			86.1	(3.3)	62.9	(4.6)	30.6	(4.4)	1.4	(1.1)	0.2	(0.5)
Quebec (F)	9.5	(2.7)	13.2	(3.1)	37.7	(4.4)	38.4	(4.4)	1.1	(0.9)	0.0	(0.0)
			90.5	(2.7)	77.2	(3.8)	39.5	(4.5)	1.1	(0.9)	0.0	(0.0)
New Brunswick (E)	15.3	(3.4)	29.3	(4.3)	37.8	(4.6)	17.4	(3.6)	0.2	(0.5)	0.0	(0.0)
			84.7	(3.4)	55.4	(4.7)	17.6	(3.6)	0.2	(0.5)	0.0	(0.0)
New Brunswick (F)	13.6	(3.4)	27.9	(4.4)	34.7	(4.7)	23.4	(4.2)	0.5	(0.7)	0.0	(0.0)
			86.4	(3.4)	58.5	(4.8)	23.9	(4.2)	0.5	(0.7)	0.0	(0.0)
Nova Scotia (E)	18.5	(3.6)	35.6	(4.5)	36.5	(4.5)	9.4	(2.7)	0.0	(0.0)	0.0	(0.0)
			81.5	(3.6)	45.9	(4.7)	9.4	(2.7)	0.0	(0.0)	0.0	(0.0)
Nova Scotia (F)	8.2	(6.3)	43.8	(11.5)	30.1	(10.6)	16.4	(8.6)	1.4	(2.7)	0.0	(0.0)
			91.8	(6.3)	47.9	(11.5)	17.8	(8.8)	1.4	(2.7)	0.0	(0.0)
Prince Edward Island	17.2	(4.1)	29.8	(5.0)	42.8	(5.4)	10.3	(3.3)	0.0	(0.0)	0.0	(0.0)
			82.8	(4.1)	53.1	(5.4)	10.3	(3.3)	0.0	(0.0)	0.0	(0.0)
Newfoundland and Labrador	20.7	(4.2)	23.5	(4.4)	35.0	(5.0)	18.2	(4.0)	2.0	(1.4)	0.6	(0.8)
			79.3	(4.2)	55.7	(5.2)	20.7	(4.2)	2.5	(1.6)	0.6	(0.8)
Yukon	18.3	(7.5)	27.9	(8.7)	34.6	(9.2)	19.2	(7.6)	0.0	(0.0)	0.0	(0.0)
			81.7	(7.4)	53.8	(9.6)	19.2	(7.6)	0.0	(0.0)	0.0	(0.0)
Northwest Territories	34.6	(5.9)	23.6	(5.2)	28.7	(5.6)	13.0	(4.1)	0.0	(0.0)	0.0	(0.0)
			65.4	(5.9)	41.7	(6.1)	13.0	(4.1)	0.0	(0.0)	0.0	(0.0)
Nunavut	72.0	(6.9)	21.3	(6.3)	6.7	(3.8)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
			28.0	(6.9)	6.7	(3.8)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
CANADA	11.9	(0.8)	23.3	(1.0)	37.8	(1.2)	26.0	(1.1)	1.0	(0.2)	0.0	(0.0)
			88.1	(0.8)	64.8	(1.2)	26.9	(1.1)	1.0	(0.2)	0.0	(0.0)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 7: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF 13-YEAR-OLD MALES BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	12.7	(2.7)	25.2	(3.5)	35.7	(3.9)	24.4	(3.5)	1.9	(1.1)	0.2	(0.3)
			87.3	(2.7)	62.1	(3.9)	26.4	(3.6)	2.1	(1.2)	0.2	(0.3)
Alberta	11.2	(2.9)	20.1	(3.7)	35.0	(4.4)	30.9	(4.2)	2.2	(1.3)	0.7	(0.7)
			88.8	(2.9)	68.7	(4.3)	33.7	(4.3)	2.8	(1.5)	0.7	(0.7)
Saskatchewan	17.4	(3.4)	31.4	(4.1)	31.4	(4.1)	19.7	(3.5)	0.2	(0.4)	0.0	(0.0)
			82.6	(3.4)	51.2	(4.4)	19.9	(3.5)	0.2	(0.4)	0.0	(0.0)
Manitoba (E)	17.0	(3.2)	25.3	(3.7)	36.5	(4.1)	21.2	(3.5)	0.0	(0.0)	0.0	(0.0)
			83.0	(3.2)	57.7	(4.2)	21.2	(3.5)	0.0	(0.0)	0.0	(0.0)
Manitoba (F)	7.7	(3.2)	27.3	(5.4)	35.8	(5.8)	28.8	(5.5)	0.0	(0.0)	0.4	(0.8)
			92.3	(3.2)	65.0	(5.8)	29.2	(5.5)	0.4	(0.8)	0.4	(0.8)
Ontario (E)	7.0	(2.5)	28.8	(4.5)	37.6	(4.8)	24.6	(4.3)	1.8	(1.3)	0.3	(0.5)
			93.0	(2.5)	64.2	(4.8)	26.7	(4.4)	2.1	(1.4)	0.3	(0.5)
Ontario (F)	18.3	(4.8)	28.6	(5.6)	26.6	(5.5)	24.6	(5.3)	2.0	(1.7)	0.0	(0.0)
			81.7	(4.8)	53.2	(6.2)	26.6	(5.5)	2.0	(1.7)	0.0	(0.0)
Quebec (E)	8.9	(2.7)	20.0	(3.8)	31.1	(4.4)	38.1	(4.6)	1.9	(1.3)	0.0	(0.0)
			91.1	(2.7)	71.1	(4.3)	40.0	(4.7)	1.9	(1.3)	0.0	(0.0)
Quebec (F)	11.1	(3.0)	16.5	(3.5)	33.3	(4.5)	37.8	(4.6)	1.2	(1.0)	0.0	(0.0)
			88.9	(3.0)	72.3	(4.3)	39.0	(4.6)	1.2	(1.0)	0.0	(0.0)
New Brunswick (E)	18.4	(3.5)	31.9	(4.2)	29.7	(4.1)	18.1	(3.5)	1.9	(1.2)	0.0	(0.0)
			81.6	(3.5)	49.8	(4.5)	20.0	(3.6)	1.9	(1.2)	0.0	(0.0)
New Brunswick (F)	18.7	(3.7)	24.8	(4.1)	33.4	(4.5)	22.4	(4.0)	0.7	(0.8)	0.0	(0.0)
			81.3	(3.7)	56.5	(4.7)	23.1	(4.0)	0.7	(0.8)	0.0	(0.0)
Nova Scotia (E)	18.1	(3.6)	32.6	(4.4)	35.6	(4.5)	13.4	(3.2)	0.2	(0.5)	0.0	(0.0)
			81.9	(3.6)	49.3	(4.7)	13.7	(3.2)	0.2	(0.5)	0.0	(0.0)
Nova Scotia (F)	12.3	(8.6)	38.6	(12.8)	29.8	(12.0)	19.3	(10.3)	0.0	(0.0)	0.0	(0.0)
			87.7	(8.5)	49.1	(13.0)	19.3	(10.2)	0.0	(0.0)	0.0	(0.0)
Prince Edward Island	21.6	(4.5)	25.7	(4.8)	38.6	(5.3)	13.4	(3.7)	0.4	(0.6)	0.4	(0.6)
			78.4	(4.5)	52.7	(5.4)	14.1	(3.8)	0.7	(0.9)	0.4	(0.6)
Newfoundland and Labrador	15.6	(3.9)	26.0	(4.8)	36.4	(5.2)	20.5	(4.4)	1.5	(1.3)	0.0	(0.0)
			84.4	(3.9)	58.4	(5.3)	22.0	(4.5)	1.5	(1.3)	0.0	(0.0)
Yukon	20.2	(8.2)	28.7	(9.2)	34.0	(9.6)	16.0	(7.4)	1.1	(2.1)	0.0	(0.0)
			79.8	(8.1)	51.1	(10.1)	17.0	(7.6)	1.1	(2.1)	0.0	(0.0)
Northwest Territories	29.9	(5.4)	30.7	(5.5)	24.5	(5.1)	13.1	(4.0)	1.8	(1.6)	0.0	(0.0)
			70.1	(5.4)	39.4	(5.8)	15.0	(4.2)	1.8	(1.6)	0.0	(0.0)
Nunavut	72.7	(6.7)	18.0	(5.8)	3.5	(2.8)	5.8	(3.5)	0.0	(0.0)	0.0	(0.0)
			27.3	(6.7)	9.3	(4.3)	5.8	(3.5)	0.0	(0.0)	0.0	(0.0)
CANADA	11.2	(0.8)	24.6	(1.1)	35.2	(1.2)	27.2	(1.1)	1.5	(0.3)	0.2	(0.1)
			88.8	(0.8)	64.2	(1.2)	29.0	(1.1)	1.7	(0.3)	0.2	(0.1)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 8: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF 16-YEAR-OLD FEMALES BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	6.0	(2.3)	18.6	(3.7)	30.2	(4.3)	35.8	(4.5)	7.7	(2.5)	1.6	(1.2)
			94.0	(2.3)	75.3	(4.1)	45.1	(4.7)	9.3	(2.7)	1.6	(1.2)
Alberta	6.2	(2.8)	11.1	(3.6)	24.2	(4.9)	41.2	(5.7)	12.8	(3.9)	4.5	(2.4)
			93.8	(2.8)	82.7	(4.4)	58.5	(5.7)	17.3	(4.4)	4.5	(2.4)
Saskatchewan	7.3	(2.4)	17.5	(3.6)	37.5	(4.5)	32.3	(4.4)	4.3	(1.9)	1.1	(1.0)
			92.7	(2.4)	75.2	(4.0)	37.7	(4.5)	5.5	(2.1)	1.1	(1.0)
Manitoba (E)	8.8	(2.7)	15.9	(3.4)	27.2	(4.2)	37.0	(4.5)	9.8	(2.8)	1.4	(1.1)
			91.2	(2.6)	75.3	(4.0)	48.1	(4.7)	11.1	(2.9)	1.4	(1.1)
Manitoba (F)	3.0	(2.2)	11.5	(4.1)	27.8	(5.8)	46.2	(6.4)	9.8	(3.8)	1.7	(1.7)
			97.0	(2.2)	85.5	(4.5)	57.7	(6.3)	11.5	(4.1)	1.7	(1.7)
Ontario (E)	7.7	(2.9)	12.9	(3.6)	31.0	(5.0)	39.0	(5.3)	8.3	(3.0)	1.2	(1.2)
			92.3	(2.9)	79.4	(4.4)	48.5	(5.4)	9.5	(3.2)	1.2	(1.2)
Ontario (F)	12.0	(3.7)	15.1	(4.1)	37.1	(5.5)	32.4	(5.3)	2.7	(1.8)	0.7	(0.9)
			88.0	(3.7)	72.9	(5.0)	35.8	(5.4)	3.3	(2.0)	0.7	(0.9)
New Brunswick (E)	9.9	(3.0)	13.8	(3.4)	34.2	(4.7)	35.5	(4.7)	5.4	(2.2)	1.3	(1.1)
			90.1	(3.0)	76.3	(4.2)	42.1	(4.9)	6.6	(2.5)	1.3	(1.1)
New Brunswick (F)	8.2	(2.8)	10.9	(3.2)	29.2	(4.7)	43.7	(5.1)	7.1	(2.6)	0.8	(0.9)
			91.8	(2.8)	80.9	(4.0)	51.6	(5.1)	7.9	(2.8)	0.8	(0.9)
Nova Scotia (E)	10.3	(3.0)	14.9	(3.5)	32.7	(4.6)	35.5	(4.7)	5.5	(2.3)	1.0	(1.0)
			89.7	(3.0)	74.8	(4.3)	42.1	(4.9)	6.5	(2.4)	1.0	(1.0)
Nova Scotia (F)	6.9	(6.6)	15.5	(9.4)	24.1	(11.1)	43.1	(12.9)	10.3	(7.9)	0.0	(0.0)
			93.1	(6.5)	77.6	(10.7)	53.4	(12.8)	10.3	(7.8)	0.0	(0.0)
Prince Edward Island	11.6	(3.8)	18.3	(4.6)	27.6	(5.4)	37.7	(5.8)	4.9	(2.6)	0.0	(0.0)
			88.4	(3.8)	70.1	(5.5)	42.5	(5.9)	4.9	(2.6)	0.0	(0.0)
Newfoundland and Labrador	17.2	(4.0)	16.0	(3.9)	30.2	(4.9)	32.6	(5.0)	3.5	(1.9)	0.6	(0.8)
			82.8	(4.0)	66.9	(5.0)	36.6	(5.1)	4.1	(2.1)	0.6	(0.8)
Yukon	17.6	(8.2)	14.1	(7.4)	27.1	(9.5)	31.8	(10.0)	9.4	(6.2)	0.0	(0.0)
			82.4	(8.1)	68.2	(9.9)	41.2	(10.5)	9.4	(6.2)	0.0	(0.0)
Northwest Territories	21.3	(6.6)	18.7	(6.3)	32.7	(7.5)	20.7	(6.5)	6.7	(4.0)	0.0	(0.0)
			78.7	(6.6)	60.0	(7.8)	27.3	(7.1)	6.7	(4.0)	0.0	(0.0)
Nunavut	54.2	(10.8)	19.3	(8.5)	18.1	(8.3)	7.2	(5.6)	1.2	(2.4)	0.0	(0.0)
			45.8	(10.7)	26.5	(9.5)	8.4	(6.0)	1.2	(2.3)	0.0	(0.0)
CANADA	7.8	(0.8)	14.2	(1.0)	30.3	(1.3)	37.8	(1.4)	8.2	(0.8)	1.7	(0.4)
			92.2	(0.8)	78.0	(1.2)	47.7	(1.4)	9.9	(0.9)	1.7	(0.4)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 9: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT PERCENTAGE OF 16-YEAR-OLD MALES BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	8.3	(2.6)	17.0	(3.6)	26.9	(4.2)	36.6	(4.6)	7.1	(2.4)	4.2	(1.9)
			91.7	(2.6)	74.8	(4.1)	47.9	(4.8)	11.3	(3.0)	4.2	(1.9)
Alberta	6.6	(2.7)	7.8	(2.9)	23.1	(4.6)	42.2	(5.4)	13.1	(3.7)	7.2	(2.8)
			93.4	(2.7)	85.6	(3.8)	62.5	(5.3)	20.3	(4.4)	7.2	(2.8)
Saskatchewan	8.5	(2.6)	17.2	(3.5)	27.2	(4.1)	37.7	(4.5)	7.8	(2.5)	1.6	(1.1)
			91.5	(2.6)	74.3	(4.0)	47.1	(4.6)	9.4	(2.7)	1.6	(1.1)
Manitoba (E)	11.5	(3.0)	15.0	(3.4)	23.6	(4.0)	38.6	(4.6)	8.1	(2.6)	3.2	(1.7)
			88.5	(3.0)	73.4	(4.2)	49.9	(4.7)	11.3	(3.0)	3.2	(1.7)
Manitoba (F)	4.0	(3.2)	7.4	(4.2)	16.8	(6.0)	55.7	(8.0)	13.4	(5.5)	2.7	(2.6)
			96.0	(3.2)	88.6	(5.1)	71.8	(7.2)	16.1	(5.9)	2.7	(2.6)
Ontario (E)	6.5	(2.5)	13.9	(3.5)	25.6	(4.5)	42.0	(5.1)	8.4	(2.8)	3.5	(1.9)
			93.5	(2.5)	79.6	(4.1)	54.0	(5.1)	12.0	(3.3)	3.5	(1.9)
Ontario (F)	12.0	(3.9)	14.7	(4.3)	24.8	(5.2)	41.4	(5.9)	5.6	(2.8)	1.5	(1.5)
			88.0	(3.9)	73.3	(5.3)	48.5	(6.0)	7.1	(3.1)	1.5	(1.5)
New Brunswick (E)	8.8	(2.7)	11.5	(3.1)	34.5	(4.6)	36.4	(4.7)	6.1	(2.3)	2.7	(1.6)
			91.2	(2.7)	79.7	(3.9)	45.2	(4.8)	8.8	(2.7)	2.7	(1.6)
New Brunswick (F)	10.4	(3.2)	13.2	(3.5)	27.2	(4.6)	42.0	(5.1)	6.4	(2.6)	0.8	(0.9)
			89.6	(3.2)	76.5	(4.4)	49.3	(5.2)	7.3	(2.7)	0.8	(0.9)
Nova Scotia (E)	8.5	(2.8)	18.1	(3.8)	28.9	(4.5)	36.7	(4.8)	5.9	(2.4)	1.8	(1.3)
			91.5	(2.8)	73.4	(4.4)	44.4	(5.0)	7.8	(2.7)	1.8	(1.3)
Nova Scotia (F)	12.5	(9.5)	14.6	(10.1)	14.6	(10.1)	45.8	(14.2)	10.4	(8.7)	2.1	(4.1)
			87.5	(9.4)	72.9	(12.6)	58.3	(13.9)	12.5	(9.4)	2.1	(4.0)
Prince Edward Island	10.7	(3.6)	13.2	(4.0)	31.4	(5.4)	37.5	(5.7)	6.1	(2.8)	1.1	(1.2)
			89.3	(3.6)	76.1	(5.0)	44.6	(5.8)	7.1	(3.0)	1.1	(1.2)
Newfoundland and Labrador	16.7	(4.2)	16.7	(4.2)	31.1	(5.2)	30.8	(5.2)	3.0	(1.9)	1.6	(1.4)
			83.3	(4.2)	66.6	(5.3)	35.4	(5.4)	4.6	(2.3)	1.6	(1.4)
Yukon	14.5	(8.0)	18.4	(8.8)	18.4	(8.8)	40.8	(11.1)	6.6	(5.6)	1.3	(2.6)
			85.5	(7.9)	67.1	(10.6)	48.7	(11.2)	7.9	(6.1)	1.3	(2.6)
Northwest Territories	15.1	(5.6)	24.5	(6.7)	16.4	(5.8)	35.8	(7.5)	6.9	(4.0)	1.3	(1.7)
			84.9	(5.6)	60.4	(7.6)	44.0	(7.7)	8.2	(4.3)	1.3	(1.7)
Nunavut	41.8	(11.9)	28.4	(10.9)	13.4	(8.2)	11.9	(7.8)	1.5	(2.9)	3.0	(4.1)
			58.2	(11.8)	29.9	(11.0)	16.4	(8.9)	4.5	(5.0)	3.0	(4.1)
CANADA	7.6	(0.8)	13.9	(1.0)	25.8	(1.3)	40.3	(1.4)	8.5	(0.8)	3.8	(0.6)
			92.4	(0.8)	78.4	(1.2)	52.6	(1.5)	12.3	(1.0)	3.8	(0.6)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 10: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING PERCENTAGE OF STUDENTS BY PERFORMANCE LEVEL AND BY AGE

	Below 1		Level 1		Level 2		Level 3		Level 4		Level 5	
13-year-olds	13.3	(0.6)	19.1	(0.7)	42.2	(0.9)	21.6	(0.8)	3.4	(0.3)	0.5	(0.1)
			86.7	(0.6)	67.6	(0.9)	25.4	(0.8)	3.8	(0.4)	0.5	(0.1)
16-year-olds	9.0	(0.6)	10.6	(0.7)	33.3	(1.0)	32.4	(1.0)	11.3	(0.7)	3.5	(0.4)
			91.0	(0.6)	80.4	(0.9)	47.1	(1.1)	14.8	(0.8)	3.5	(0.4)

Note: For each age group, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 11: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING PERCENTAGE OF 13-YEAR-OLDS BY PERFORMANCE LEVEL AND BY GENDER

	Below 1		Level 1		Level 2		Level 3		Level 4		Level 5	
Female	12.6	(0.9)	17.1	(1.0)	45.1	(1.3)	21.6	(1.1)	3.2	(0.5)	0.4	(0.2)
			87.4	(0.9)	70.3	(1.2)	25.3	(1.1)	3.6	(0.5)	0.4	(0.2)
Male	13.7	(0.9)	21.3	(1.1)	39.2	(1.3)	21.6	(1.1)	3.5	(0.5)	0.6	(0.2)
			86.3	(0.9)	64.9	(1.3)	25.7	(1.2)	4.1	(0.5)	0.6	(0.2)
No Information	35.8	(10.2)	8.1	(5.8)	41.5	(10.5)	13.6	(7.3)	1.0	(2.1)	0.0	(0.0)
			64.2	(10.1)	56.1	(10.5)	14.6	(7.5)	1.0	(2.1)	0.0	(0.0)

Note: For each gender, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 12: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING PERCENTAGE OF 16-YEAR-OLDS BY PERFORMANCE LEVEL AND BY GENDER

	Below 1		Level 1		Level 2		Level 3		Level 4		Level 5	
Female	8.0	(0.8)	11.1	(1.0)	32.5	(1.4)	33.6	(1.4)	12.1	(1.0)	2.8	(0.5)
			92.0	(0.8)	81.0	(1.2)	48.5	(1.5)	14.9	(1.1)	2.8	(0.5)
Male	8.9	(0.9)	10.0	(0.9)	34.5	(1.5)	31.7	(1.5)	10.8	(1.0)	4.1	(0.6)
			91.1	(0.9)	81.1	(1.2)	46.6	(1.6)	14.9	(1.1)	4.1	(0.6)
No Information	45.1	(9.7)	16.2	(7.2)	22.1	(8.1)	13.8	(6.7)	1.4	(2.3)	1.4	(2.3)
			54.9	(9.6)	38.6	(9.4)	16.5	(7.2)	2.7	(3.2)	1.4	(2.2)

Note: For each gender, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 13: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING PERCENTAGE OF 13-YEAR-OLDS BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	15.0	(2.1)	21.7	(2.5)	40.2	(2.9)	19.9	(2.4)	3.0	(1.0)	0.3	(0.3)
			85.0	(2.1)	63.3	(2.9)	23.1	(2.5)	3.2	(1.1)	0.3	(0.3)
Alberta	9.7	(2.0)	13.7	(2.3)	44.7	(3.4)	25.4	(2.9)	5.2	(1.5)	1.3	(0.8)
			90.3	(2.0)	76.5	(2.9)	31.9	(3.1)	6.5	(1.7)	1.3	(0.8)
Saskatchewan	16.6	(2.4)	22.5	(2.7)	44.6	(3.3)	14.3	(2.3)	1.8	(0.9)	0.1	(0.2)
			83.4	(2.4)	60.8	(3.2)	16.2	(2.4)	1.9	(0.9)	0.1	(0.2)
Manitoba (E)	17.4	(2.4)	22.2	(2.6)	38.4	(3.0)	19.5	(2.5)	1.9	(0.9)	0.5	(0.4)
			82.6	(2.4)	60.4	(3.0)	21.9	(2.6)	2.4	(1.0)	0.5	(0.4)
Manitoba (F)	11.0	(2.7)	17.9	(3.4)	42.6	(4.3)	23.9	(3.7)	3.8	(1.7)	0.8	(0.8)
			89.0	(2.7)	71.1	(4.0)	28.5	(3.9)	4.6	(1.8)	0.8	(0.8)
Ontario (E)	12.0	(2.3)	19.3	(2.8)	43.7	(3.5)	21.7	(2.9)	3.2	(1.2)	0.1	(0.3)
			88.0	(2.3)	68.7	(3.3)	25.1	(3.1)	3.4	(1.3)	0.1	(0.3)
Ontario (F)	13.3	(3.3)	17.9	(3.7)	43.2	(4.8)	22.4	(4.1)	2.7	(1.6)	0.5	(0.7)
			86.7	(3.3)	68.8	(4.5)	25.6	(4.2)	3.2	(1.7)	0.5	(0.7)
Quebec (E)	9.6	(2.1)	21.2	(2.9)	40.2	(3.5)	22.9	(3.0)	5.4	(1.6)	0.6	(0.6)
			90.4	(2.1)	69.2	(3.3)	29.0	(3.2)	6.1	(1.7)	0.6	(0.6)
Quebec (F)	12.3	(2.6)	16.6	(3.0)	42.1	(4.0)	24.3	(3.4)	3.8	(1.5)	0.8	(0.7)
			87.7	(2.6)	71.0	(3.6)	29.0	(3.6)	4.7	(1.7)	0.8	(0.7)
New Brunswick (E)	17.9	(2.5)	24.2	(2.8)	40.2	(3.2)	15.8	(2.4)	1.7	(0.8)	0.2	(0.3)
			82.1	(2.5)	57.9	(3.3)	17.7	(2.5)	1.9	(0.9)	0.2	(0.3)
New Brunswick (F)	12.6	(2.5)	21.9	(3.1)	39.0	(3.7)	22.8	(3.1)	3.5	(1.4)	0.1	(0.3)
			87.4	(2.5)	65.5	(3.6)	26.5	(3.3)	3.7	(1.4)	0.1	(0.3)
Nova Scotia (E)	22.7	(2.8)	26.4	(3.0)	37.2	(3.3)	12.4	(2.2)	1.1	(0.7)	0.2	(0.3)
			77.3	(2.8)	50.9	(3.4)	13.7	(2.3)	1.3	(0.8)	0.2	(0.3)
Nova Scotia (F)	12.0	(7.0)	30.1	(9.9)	42.2	(10.7)	14.5	(7.6)	1.2	(2.4)	0.0	(0.0)
			88.0	(7.0)	57.8	(10.6)	15.7	(7.8)	1.2	(2.3)	0.0	(0.0)
Prince Edward Island	19.2	(3.3)	29.0	(3.8)	36.1	(4.0)	13.3	(2.8)	2.0	(1.2)	0.4	(0.5)
			80.8	(3.3)	51.8	(4.2)	15.7	(3.0)	2.4	(1.3)	0.4	(0.5)
Newfoundland and Labrador	20.0	(3.1)	21.8	(3.2)	36.2	(3.8)	19.5	(3.1)	2.2	(1.2)	0.3	(0.4)
			80.0	(3.1)	58.2	(3.9)	22.1	(3.3)	2.6	(1.2)	0.3	(0.4)
Yukon	18.5	(6.3)	17.8	(6.2)	48.6	(8.1)	13.0	(5.5)	1.4	(1.9)	0.7	(1.3)
			81.5	(6.3)	63.7	(7.8)	15.1	(5.8)	2.1	(2.3)	0.7	(1.3)
Northwest Territories	44.2	(5.4)	22.9	(4.6)	24.7	(4.7)	7.3	(2.8)	0.9	(1.0)	0.0	(0.0)
			55.8	(5.4)	32.9	(5.1)	8.2	(3.0)	0.9	(1.0)	0.0	(0.0)
Nunavut	90.7	(4.4)	7.0	(3.8)	1.7	(2.0)	0.6	(1.1)	0.0	(0.0)	0.0	(0.0)
			9.3	(4.3)	2.3	(2.3)	0.6	(1.1)	0.0	(0.0)	0.0	(0.0)
CANADA	13.3	(0.6)	19.1	(0.7)	42.2	(0.9)	21.6	(0.8)	3.4	(0.3)	0.5	(0.1)
			86.7	(0.6)	67.6	(0.9)	25.4	(0.8)	3.8	(0.4)	0.5	(0.1)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 14: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING PERCENTAGE OF 16-YEAR-OLDS BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	8.5	(1.9)	10.0	(2.1)	36.4	(3.3)	32.5	(3.2)	9.6	(2.0)	2.9	(1.2)
			91.5	(1.9)	81.5	(2.7)	45.1	(3.4)	12.5	(2.3)	2.9	(1.2)
Alberta	6.4	(2.0)	6.4	(2.0)	28.2	(3.7)	36.9	(4.0)	16.6	(3.1)	5.5	(1.9)
			93.6	(2.0)	87.2	(2.8)	59.0	(4.1)	22.1	(3.4)	5.5	(1.9)
Saskatchewan	9.2	(2.0)	10.8	(2.1)	34.7	(3.3)	34.2	(3.3)	8.8	(2.0)	2.2	(1.0)
			90.8	(2.0)	80.0	(2.8)	45.3	(3.4)	11.0	(2.2)	2.2	(1.0)
Manitoba (E)	9.6	(2.0)	10.5	(2.1)	32.4	(3.2)	32.9	(3.2)	8.8	(1.9)	5.9	(1.6)
			90.4	(2.0)	79.9	(2.7)	47.6	(3.4)	14.7	(2.4)	5.9	(1.6)
Manitoba (F)	2.9	(1.8)	7.6	(2.8)	30.3	(4.9)	42.0	(5.2)	12.0	(3.4)	5.2	(2.4)
			97.1	(1.8)	89.5	(3.2)	59.2	(5.2)	17.2	(4.0)	5.2	(2.4)
Ontario (E)	8.9	(2.2)	11.5	(2.5)	33.2	(3.7)	31.6	(3.7)	11.6	(2.5)	3.2	(1.4)
			91.1	(2.2)	79.7	(3.2)	46.5	(3.9)	14.8	(2.8)	3.2	(1.4)
Ontario (F)	15.1	(3.3)	10.1	(2.8)	36.0	(4.5)	29.4	(4.2)	7.0	(2.4)	2.5	(1.4)
			84.9	(3.3)	74.8	(4.0)	38.9	(4.5)	9.4	(2.7)	2.5	(1.4)
New Brunswick (E)	9.5	(2.1)	12.6	(2.4)	36.1	(3.4)	30.3	(3.3)	7.8	(1.9)	3.8	(1.4)
			90.5	(2.1)	77.9	(3.0)	41.8	(3.5)	11.5	(2.3)	3.8	(1.4)
New Brunswick (F)	9.9	(2.4)	9.2	(2.3)	27.7	(3.6)	35.9	(3.9)	13.6	(2.8)	3.7	(1.5)
			90.1	(2.4)	80.9	(3.2)	53.2	(4.0)	17.3	(3.0)	3.7	(1.5)
Nova Scotia (E)	9.3	(2.0)	13.6	(2.4)	36.8	(3.4)	29.2	(3.2)	9.0	(2.0)	2.2	(1.0)
			90.7	(2.0)	77.1	(2.9)	40.3	(3.4)	11.1	(2.2)	2.2	(1.0)
Nova Scotia (F)	4.9	(5.5)	9.8	(7.5)	36.1	(12.2)	42.6	(12.5)	6.6	(6.3)	0.0	(0.0)
			95.1	(5.4)	85.2	(8.9)	49.2	(12.5)	6.6	(6.2)	0.0	(0.0)
Prince Edward Island	11.8	(2.7)	11.3	(2.7)	37.7	(4.1)	31.0	(3.9)	6.7	(2.1)	1.5	(1.0)
			88.2	(2.7)	76.9	(3.5)	39.2	(4.1)	8.2	(2.3)	1.5	(1.0)
Newfoundland and Labrador	13.8	(2.8)	13.6	(2.7)	35.2	(3.8)	27.4	(3.6)	8.3	(2.2)	1.7	(1.0)
			86.2	(2.8)	72.6	(3.6)	37.4	(3.9)	10.0	(2.4)	1.7	(1.0)
Yukon	20.5	(7.0)	15.7	(6.4)	32.3	(8.2)	22.0	(7.2)	7.1	(4.5)	2.4	(2.7)
			79.5	(7.0)	63.8	(8.4)	31.5	(8.1)	9.4	(5.1)	2.4	(2.6)
Northwest Territories	34.6	(8.2)	15.4	(6.2)	30.0	(7.9)	13.8	(6.0)	5.4	(3.9)	0.8	(1.5)
			65.4	(8.2)	50.0	(8.6)	20.0	(6.9)	6.2	(4.1)	0.8	(1.5)
Nunavut	84.5	(9.4)	1.7	(3.4)	8.6	(7.3)	3.4	(4.7)	1.7	(3.4)	0.0	(0.0)
			15.5	(9.3)	13.8	(8.9)	5.2	(5.7)	1.7	(3.4)	0.0	(0.0)
CANADA	9.0	(0.6)	10.6	(0.7)	33.3	(1.0)	32.4	(1.0)	11.3	(0.7)	3.5	(0.4)
			91.0	(0.6)	80.4	(0.9)	47.1	(1.1)	14.8	(0.8)	3.5	(0.4)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 15: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING
PERCENTAGE OF 13-YEAR-OLD FEMALES BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	15.3	(3.1)	22.6	(3.6)	41.7	(4.3)	18.3	(3.4)	2.0	(1.2)	0.2	(0.4)
			84.7	(3.1)	62.1	(4.2)	20.4	(3.5)	2.2	(1.3)	0.2	(0.4)
Alberta	9.5	(2.8)	10.7	(3.0)	47.0	(4.8)	25.9	(4.2)	5.5	(2.2)	1.4	(1.1)
			90.5	(2.8)	79.8	(3.8)	32.8	(4.5)	6.9	(2.4)	1.4	(1.1)
Saskatchewan	16.1	(3.4)	20.5	(3.8)	49.3	(4.7)	11.8	(3.0)	2.0	(1.3)	0.2	(0.4)
			83.9	(3.4)	63.4	(4.5)	14.1	(3.3)	2.3	(1.4)	0.2	(0.4)
Manitoba (E)	17.5	(3.4)	21.8	(3.7)	39.4	(4.3)	19.3	(3.5)	1.8	(1.2)	0.2	(0.4)
			82.5	(3.4)	60.8	(4.3)	21.4	(3.6)	2.1	(1.3)	0.2	(0.4)
Manitoba (F)	8.3	(3.3)	17.8	(4.6)	48.1	(6.0)	21.2	(4.9)	3.4	(2.2)	1.1	(1.3)
			91.7	(3.3)	73.9	(5.3)	25.8	(5.3)	4.5	(2.5)	1.1	(1.3)
Ontario (E)	11.4	(3.1)	17.6	(3.7)	45.9	(4.9)	21.8	(4.0)	3.0	(1.7)	0.2	(0.5)
			88.6	(3.1)	71.0	(4.4)	25.1	(4.2)	3.2	(1.7)	0.2	(0.5)
Ontario (F)	11.5	(4.4)	18.8	(5.3)	47.6	(6.8)	18.3	(5.3)	3.4	(2.5)	0.5	(0.9)
			88.5	(4.3)	69.7	(6.2)	22.1	(5.6)	3.8	(2.6)	0.5	(0.9)
Quebec (E)	8.1	(2.7)	20.1	(4.0)	38.2	(4.8)	26.0	(4.3)	7.1	(2.5)	0.5	(0.7)
			91.9	(2.7)	71.8	(4.5)	33.6	(4.7)	7.6	(2.6)	0.5	(0.7)
Quebec (F)	11.0	(3.5)	11.6	(3.6)	48.1	(5.6)	25.2	(4.8)	3.9	(2.2)	0.3	(0.6)
			89.0	(3.5)	77.4	(4.7)	29.4	(5.1)	4.2	(2.2)	0.3	(0.6)
New Brunswick (E)	15.2	(3.3)	23.6	(3.9)	41.9	(4.5)	18.3	(3.6)	1.1	(1.0)	0.0	(0.0)
			84.8	(3.3)	61.2	(4.5)	19.4	(3.6)	1.1	(1.0)	0.0	(0.0)
New Brunswick (F)	10.4	(3.3)	21.6	(4.4)	41.7	(5.3)	23.1	(4.5)	3.3	(1.9)	0.0	(0.0)
			89.6	(3.2)	68.0	(5.0)	26.3	(4.7)	3.3	(1.9)	0.0	(0.0)
Nova Scotia (E)	21.7	(3.9)	25.6	(4.1)	39.5	(4.6)	11.8	(3.0)	1.4	(1.1)	0.0	(0.0)
			78.3	(3.9)	52.7	(4.7)	13.2	(3.2)	1.4	(1.1)	0.0	(0.0)
Nova Scotia (F)	15.8	(9.6)	33.3	(12.3)	40.4	(12.8)	10.5	(8.0)	0.0	(0.0)	0.0	(0.0)
			84.2	(9.5)	50.9	(13.0)	10.5	(8.0)	0.0	(0.0)	0.0	(0.0)
Prince Edward Island	19.7	(4.6)	27.1	(5.2)	37.3	(5.6)	14.4	(4.1)	1.1	(1.2)	0.4	(0.7)
			80.3	(4.6)	53.2	(5.8)	15.8	(4.2)	1.4	(1.4)	0.4	(0.7)
Newfoundland and Labrador	18.5	(4.4)	22.4	(4.7)	35.3	(5.4)	20.8	(4.6)	3.0	(1.9)	0.0	(0.0)
			81.5	(4.4)	59.1	(5.5)	23.8	(4.8)	3.0	(1.9)	0.0	(0.0)
Yukon	16.2	(8.5)	13.5	(7.8)	52.7	(11.5)	14.9	(8.2)	1.4	(2.6)	1.4	(2.6)
			83.8	(8.4)	70.3	(10.4)	17.6	(8.7)	2.7	(3.7)	1.4	(2.6)
Northwest Territories	38.1	(7.5)	27.5	(6.9)	26.9	(6.9)	6.9	(3.9)	0.6	(1.2)	0.0	(0.0)
			61.9	(7.5)	34.4	(7.4)	7.5	(4.1)	0.6	(1.2)	0.0	(0.0)
Nunavut	90.7	(6.2)	7.0	(5.4)	2.3	(3.2)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
			9.3	(6.1)	2.3	(3.2)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
CANADA	12.6	(0.9)	17.1	(1.0)	45.1	(1.3)	21.6	(1.1)	3.2	(0.5)	0.4	(0.2)
			87.4	(0.9)	70.3	(1.2)	25.3	(1.1)	3.6	(0.5)	0.4	(0.2)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 16: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING
PERCENTAGE OF 13-YEAR-OLD MALES BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	14.7	(3.0)	21.6	(3.4)	38.6	(4.1)	20.8	(3.4)	4.0	(1.6)	0.4	(0.5)
			85.3	(3.0)	63.8	(4.0)	25.2	(3.6)	4.3	(1.7)	0.4	(0.5)
Alberta	10.0	(2.9)	16.7	(3.6)	42.1	(4.7)	24.9	(4.1)	5.0	(2.1)	1.2	(1.0)
			90.0	(2.9)	73.2	(4.2)	31.1	(4.4)	6.2	(2.3)	1.2	(1.0)
Saskatchewan	17.3	(3.5)	23.5	(3.9)	40.6	(4.6)	17.0	(3.5)	1.6	(1.2)	0.0	(0.0)
			82.7	(3.5)	59.2	(4.6)	18.6	(3.6)	1.6	(1.2)	0.0	(0.0)
Manitoba (E)	17.0	(3.3)	22.8	(3.7)	37.6	(4.2)	19.8	(3.5)	2.0	(1.2)	0.8	(0.8)
			83.0	(3.3)	60.2	(4.3)	22.6	(3.6)	2.8	(1.4)	0.8	(0.8)
Manitoba (F)	13.6	(4.4)	18.2	(4.9)	36.9	(6.2)	26.7	(5.7)	4.2	(2.6)	0.4	(0.8)
			86.4	(4.4)	68.2	(5.9)	31.4	(5.9)	4.7	(2.7)	0.4	(0.8)
Ontario (E)	12.0	(3.3)	21.3	(4.2)	41.3	(5.1)	21.9	(4.2)	3.6	(1.9)	0.0	(0.0)
			88.0	(3.3)	66.7	(4.8)	25.4	(4.5)	3.6	(1.9)	0.0	(0.0)
Ontario (F)	13.5	(4.9)	17.2	(5.4)	39.6	(6.9)	27.1	(6.3)	2.1	(2.0)	0.5	(1.0)
			86.5	(4.8)	69.3	(6.5)	29.7	(6.5)	2.6	(2.3)	0.5	(1.0)
Quebec (E)	11.1	(3.2)	22.5	(4.2)	42.3	(5.0)	19.8	(4.0)	3.4	(1.8)	0.8	(0.9)
			88.9	(3.2)	66.4	(4.8)	24.1	(4.3)	4.2	(2.0)	0.8	(0.9)
Quebec (F)	13.5	(3.9)	22.1	(4.8)	35.6	(5.5)	23.5	(4.9)	3.8	(2.2)	1.4	(1.3)
			86.5	(3.9)	64.4	(5.5)	28.7	(5.2)	5.2	(2.6)	1.4	(1.3)
New Brunswick (E)	19.6	(3.8)	25.3	(4.1)	39.0	(4.7)	13.2	(3.2)	2.4	(1.4)	0.5	(0.7)
			80.4	(3.8)	55.1	(4.7)	16.1	(3.5)	2.8	(1.6)	0.5	(0.7)
New Brunswick (F)	14.8	(3.8)	22.0	(4.4)	36.5	(5.1)	22.6	(4.4)	3.8	(2.0)	0.3	(0.6)
			85.2	(3.7)	63.2	(5.1)	26.7	(4.7)	4.1	(2.1)	0.3	(0.6)
Nova Scotia (E)	24.1	(4.2)	27.6	(4.4)	34.2	(4.7)	13.2	(3.3)	0.5	(0.7)	0.5	(0.7)
			75.9	(4.2)	48.4	(4.9)	14.2	(3.4)	1.0	(1.0)	0.5	(0.7)
Nova Scotia (F)	3.8	(7.5)	23.1	(16.5)	46.2	(19.5)	23.1	(16.5)	3.8	(7.5)	0.0	(0.0)
			96.2	(7.4)	73.1	(17.0)	26.9	(17.0)	3.8	(7.4)	0.0	(0.0)
Prince Edward Island	18.8	(4.8)	30.0	(5.6)	35.4	(5.8)	12.3	(4.0)	3.1	(2.1)	0.4	(0.8)
			81.2	(4.8)	51.2	(6.1)	15.8	(4.4)	3.5	(2.2)	0.4	(0.8)
Newfoundland and Labrador	21.1	(4.5)	21.1	(4.5)	37.4	(5.3)	18.2	(4.3)	1.6	(1.4)	0.6	(0.9)
			78.9	(4.5)	57.9	(5.4)	20.4	(4.4)	2.2	(1.6)	0.6	(0.9)
Yukon	21.4	(9.7)	21.4	(9.7)	44.3	(11.7)	11.4	(7.5)	1.4	(2.8)	0.0	(0.0)
			78.6	(9.6)	57.1	(11.6)	12.9	(7.8)	1.4	(2.8)	0.0	(0.0)
Northwest Territories	50.0	(7.7)	17.7	(5.9)	23.2	(6.5)	7.9	(4.1)	1.2	(1.7)	0.0	(0.0)
			50.0	(7.7)	32.3	(7.2)	9.1	(4.4)	1.2	(1.7)	0.0	(0.0)
Nunavut	91.4	(6.2)	6.2	(5.3)	1.2	(2.4)	1.2	(2.4)	0.0	(0.0)	0.0	(0.0)
			8.6	(6.1)	2.5	(3.4)	1.2	(2.4)	0.0	(0.0)	0.0	(0.0)
CANADA	13.7	(0.9)	21.3	(1.1)	39.2	(1.3)	21.6	(1.1)	3.5	(0.5)	0.6	(0.2)
			86.3	(0.9)	64.9	(1.3)	25.7	(1.2)	4.1	(0.5)	0.6	(0.2)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 17: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING
PERCENTAGE OF 16-YEAR-OLD FEMALES BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	5.2	(2.2)	9.7	(2.9)	36.2	(4.7)	35.9	(4.7)	10.7	(3.0)	2.2	(1.5)
			94.8	(2.2)	85.0	(3.5)	48.9	(4.9)	13.0	(3.3)	2.2	(1.4)
Alberta	6.4	(2.9)	7.1	(3.1)	27.3	(5.4)	36.7	(5.8)	18.0	(4.6)	4.5	(2.5)
			93.6	(2.9)	86.5	(4.1)	59.2	(5.9)	22.5	(5.0)	4.5	(2.5)
Saskatchewan	9.0	(2.9)	10.8	(3.1)	33.8	(4.7)	35.8	(4.8)	8.8	(2.8)	1.8	(1.3)
			91.0	(2.9)	80.2	(4.0)	46.4	(5.0)	10.6	(3.1)	1.8	(1.3)
Manitoba (E)	8.4	(2.6)	8.1	(2.6)	32.0	(4.4)	35.3	(4.5)	10.7	(2.9)	5.6	(2.2)
			91.6	(2.6)	83.5	(3.5)	51.5	(4.7)	16.2	(3.5)	5.6	(2.2)
Manitoba (F)	3.0	(2.4)	8.5	(3.9)	29.9	(6.3)	43.3	(6.9)	10.4	(4.2)	5.0	(3.0)
			97.0	(2.4)	88.6	(4.4)	58.7	(6.8)	15.4	(5.0)	5.0	(3.0)
Ontario (E)	7.9	(3.0)	12.2	(3.7)	32.0	(5.3)	32.7	(5.3)	12.5	(3.7)	2.6	(1.8)
			92.1	(3.0)	79.9	(4.5)	47.9	(5.6)	15.2	(4.0)	2.6	(1.8)
Ontario (F)	15.9	(4.7)	13.4	(4.4)	35.3	(6.2)	26.3	(5.7)	6.9	(3.3)	2.2	(1.9)
			84.1	(4.7)	70.7	(5.9)	35.3	(6.2)	9.1	(3.7)	2.2	(1.9)
New Brunswick (E)	9.6	(3.0)	10.9	(3.1)	36.7	(4.8)	33.6	(4.7)	7.6	(2.6)	1.6	(1.2)
			90.4	(3.0)	79.4	(4.0)	42.7	(4.9)	9.1	(2.9)	1.6	(1.2)
New Brunswick (F)	11.0	(3.4)	9.2	(3.1)	30.1	(5.0)	32.5	(5.1)	13.8	(3.8)	3.4	(2.0)
			89.0	(3.4)	79.8	(4.4)	49.7	(5.4)	17.2	(4.1)	3.4	(2.0)
Nova Scotia (E)	10.3	(3.0)	16.4	(3.7)	33.6	(4.7)	30.3	(4.6)	7.9	(2.7)	1.5	(1.2)
			89.7	(3.0)	73.3	(4.4)	39.7	(4.9)	9.5	(2.9)	1.5	(1.2)
Nova Scotia (F)	3.3	(6.5)	6.7	(9.1)	33.3	(17.2)	46.7	(18.2)	10.0	(10.9)	0.0	(0.0)
			96.7	(6.4)	90.0	(10.7)	56.7	(17.7)	10.0	(10.7)	0.0	(0.0)
Prince Edward Island	8.0	(3.1)	10.4	(3.5)	40.1	(5.7)	32.5	(5.4)	7.3	(3.0)	1.7	(1.5)
			92.0	(3.1)	81.7	(4.5)	41.5	(5.7)	9.0	(3.3)	1.7	(1.5)
Newfoundland and Labrador	13.2	(3.8)	14.1	(3.9)	35.5	(5.4)	27.3	(5.0)	8.2	(3.1)	1.6	(1.4)
			86.8	(3.8)	72.7	(5.0)	37.2	(5.4)	9.9	(3.4)	1.6	(1.4)
Yukon	21.1	(10.7)	14.0	(9.1)	42.1	(12.9)	12.3	(8.6)	10.5	(8.0)	0.0	(0.0)
			78.9	(10.6)	64.9	(12.4)	22.8	(10.9)	10.5	(8.0)	0.0	(0.0)
Northwest Territories	33.9	(12.5)	10.7	(8.2)	35.7	(12.7)	10.7	(8.2)	8.9	(7.5)	0.0	(0.0)
			66.1	(12.4)	55.4	(13.0)	19.6	(10.4)	8.9	(7.5)	0.0	(0.0)
Nunavut	88.2	(11.0)	0.0	(0.0)	11.8	(11.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
			11.8	(10.8)	11.8	(10.8)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
CANADA	8.0	(0.8)	11.1	(1.0)	32.5	(1.4)	33.6	(1.4)	12.1	(1.0)	2.8	(0.5)
			92.0	(0.8)	81.0	(1.2)	48.5	(1.5)	14.9	(1.1)	2.8	(0.5)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 18: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING
PERCENTAGE OF 16-YEAR-OLD MALES BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	11.6	(3.2)	9.3	(2.9)	37.4	(4.8)	29.3	(4.5)	8.8	(2.8)	3.5	(1.8)
			88.4	(3.2)	79.0	(4.0)	41.7	(4.9)	12.4	(3.2)	3.5	(1.8)
Alberta	6.5	(2.8)	5.8	(2.7)	28.5	(5.2)	37.1	(5.6)	15.5	(4.2)	6.5	(2.8)
			93.5	(2.8)	87.6	(3.8)	59.1	(5.6)	22.0	(4.8)	6.5	(2.8)
Saskatchewan	9.2	(2.8)	10.9	(3.0)	35.4	(4.6)	32.9	(4.5)	9.0	(2.8)	2.7	(1.6)
			90.8	(2.8)	79.9	(3.9)	44.6	(4.8)	11.6	(3.1)	2.7	(1.6)
Manitoba (E)	10.0	(2.9)	13.3	(3.3)	32.8	(4.6)	30.8	(4.5)	7.0	(2.5)	6.2	(2.4)
			90.0	(2.9)	76.8	(4.1)	44.0	(4.9)	13.3	(3.3)	6.2	(2.4)
Manitoba (F)	2.9	(2.8)	5.7	(3.9)	30.7	(7.7)	40.7	(8.2)	14.3	(5.8)	5.7	(3.9)
			97.1	(2.8)	91.4	(4.6)	60.7	(8.1)	20.0	(6.6)	5.7	(3.8)
Ontario (E)	8.1	(3.0)	10.7	(3.4)	35.0	(5.3)	31.4	(5.2)	11.0	(3.5)	3.9	(2.2)
			91.9	(3.0)	81.2	(4.4)	46.3	(5.6)	14.9	(4.0)	3.9	(2.2)
Ontario (F)	11.8	(4.5)	6.9	(3.5)	37.4	(6.7)	33.5	(6.5)	7.4	(3.6)	3.0	(2.3)
			88.2	(4.4)	81.3	(5.4)	43.8	(6.8)	10.3	(4.2)	3.0	(2.3)
New Brunswick (E)	8.1	(2.8)	14.6	(3.7)	35.9	(5.0)	27.2	(4.6)	8.1	(2.8)	6.2	(2.5)
			91.9	(2.8)	77.3	(4.3)	41.5	(5.1)	14.3	(3.6)	6.2	(2.5)
New Brunswick (F)	8.5	(3.3)	9.3	(3.5)	24.8	(5.2)	40.0	(5.9)	13.3	(4.1)	4.1	(2.4)
			91.5	(3.3)	82.2	(4.6)	57.4	(5.9)	17.4	(4.5)	4.1	(2.4)
Nova Scotia (E)	8.3	(2.8)	10.6	(3.1)	40.4	(4.9)	27.7	(4.5)	10.1	(3.0)	2.8	(1.7)
			91.7	(2.8)	81.1	(3.9)	40.7	(4.9)	13.0	(3.3)	2.8	(1.7)
Nova Scotia (F)	6.5	(8.8)	12.9	(12.0)	38.7	(17.4)	38.7	(17.4)	3.2	(6.3)	0.0	(0.0)
			93.5	(8.6)	80.6	(13.9)	41.9	(17.4)	3.2	(6.2)	0.0	(0.0)
Prince Edward Island	15.4	(4.6)	12.0	(4.1)	34.4	(6.0)	30.3	(5.8)	6.6	(3.1)	1.2	(1.4)
			84.6	(4.6)	72.6	(5.6)	38.2	(6.1)	7.9	(3.4)	1.2	(1.4)
Newfoundland and Labrador	14.9	(4.1)	11.8	(3.7)	34.7	(5.5)	28.1	(5.2)	8.7	(3.3)	1.7	(1.5)
			85.1	(4.1)	73.3	(5.1)	38.5	(5.6)	10.4	(3.5)	1.7	(1.5)
Yukon	18.8	(9.3)	17.4	(9.0)	24.6	(10.2)	30.4	(10.9)	4.3	(4.8)	4.3	(4.8)
			81.2	(9.2)	63.8	(11.3)	39.1	(11.5)	8.7	(6.6)	4.3	(4.8)
Northwest Territories	33.8	(11.1)	18.3	(9.1)	26.8	(10.4)	16.9	(8.8)	2.8	(3.9)	1.4	(2.8)
			66.2	(11.0)	47.9	(11.6)	21.1	(9.5)	4.2	(4.7)	1.4	(2.7)
Nunavut	78.3	(17.2)	4.3	(8.5)	4.3	(8.5)	8.7	(11.8)	4.3	(8.5)	0.0	(0.0)
			21.7	(16.9)	17.4	(15.5)	13.0	(13.8)	4.3	(8.3)	0.0	(0.0)
CANADA	8.9	(0.9)	10.0	(0.9)	34.5	(1.5)	31.7	(1.5)	10.8	(1.0)	4.1	(0.6)
			91.1	(0.9)	81.1	(1.2)	46.6	(1.6)	14.9	(1.1)	4.1	(0.6)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted according to SAIP design.

TABLE 19: SAIP MATHEMATICS III (2001) — MATHEMATICS CONTENT NUMBER OF PARTICIPANTS BY POPULATION

Jurisdiction	*13 years old*	*16 years old*	*Total*
British Columbia	1,126	865	1,991
Alberta	878	610	1,488
Saskatchewan	994	892	1,886
Manitoba (E)	1,014	875	1,889
Manitoba (F)	573	383	956
Ontario (E)	823	710	1,533
Ontario (F)	508	569	1,077
Quebec (E)	863	—	863
Quebec (F)	885	—	885
New Brunswick (E)	913	815	1,728
New Brunswick (F)	828	725	1,553
Nova Scotia (E)	874	790	1,664
Nova Scotia (F)	130	106	236
Prince Edward Island	650	553	1,203
Newfoundland and Labrador	685	655	1,340
Yukon	198	164	362
Northwest Territories	531	312	843
Nunavut	338	152	490
Total	**12,811**	**9,176**	**21,987**

TABLE 20: SAIP MATHEMATICS III (2001) — PROBLEM SOLVING NUMBER OF PARTICIPANTS BY POPULATION

Jurisdiction	*13 years old*	*16 years old*	*Total*
British Columbia	1,078	821	1,899
Alberta	844	561	1,405
Saskatchewan	896	806	1,702
Manitoba (E)	994	837	1,831
Manitoba (F)	502	343	845
Ontario (E)	774	620	1,394
Ontario (F)	407	445	852
Quebec (E)	773	—	773
Quebec (F)	601	—	601
New Brunswick (E)	886	746	1,632
New Brunswick (F)	684	596	1,280
Nova Scotia (E)	833	782	1,615
Nova Scotia (F)	83	61	144
Prince Edward Island	548	549	1,097
Newfoundland and Labrador	625	602	1,227
Yukon	146	127	273
Northwest Territories	328	130	458
Nunavut	172	58	230
Total	**11,174**	**8,084**	**19,258**

TABLE 21: SAIP MATHEMATICS II (1997) — MATHEMATICS CONTENT PERCENTAGE OF 13-YEAR-OLDS BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	10.3	(1.8)	32.8	(2.8)	29.9	(2.8)	25.7	(2.6)	1.3	(0.7)	0.0	(0.0)
			89.7	(1.8)	56.9	(3.0)	27.0	(2.7)	1.3	(0.7)	0.0	(0.0)
Alberta	7.5	(1.7)	27.8	(2.8)	32.5	(2.9)	30.7	(2.9)	1.4	(0.7)	0.0	(0.0)
			92.5	(1.7)	64.7	(3.0)	32.1	(2.9)	1.4	(0.7)	0.0	(0.0)
Saskatchewan	12.6	(2.1)	39.5	(3.2)	29.4	(2.9)	18.1	(2.5)	0.4	(0.4)	0.0	(0.0)
			87.4	(2.1)	47.9	(3.2)	18.5	(2.5)	0.4	(0.4)	0.0	(0.0)
Manitoba (E)	12.2	(2.2)	35.9	(3.2)	28.9	(3.0)	22.3	(2.8)	0.7	(0.5)	0.0	(0.0)
			87.8	(2.2)	51.9	(3.3)	23.0	(2.8)	0.7	(0.5)	0.0	(0.0)
Manitoba (F)	5.0	(1.4)	33.0	(3.1)	30.1	(3.0)	31.3	(3.1)	0.5	(0.5)	0.0	(0.0)
			95.0	(1.4)	61.9	(3.2)	31.9	(3.1)	0.5	(0.5)	0.0	(0.0)
Ontario (E)	11.6	(2.0)	38.4	(3.0)	32.1	(2.9)	17.5	(2.4)	0.4	(0.4)	0.0	(0.0)
			88.4	(2.0)	50.0	(3.1)	17.9	(2.4)	0.4	(0.4)	0.0	(0.0)
Ontario (F)	9.3	(1.8)	38.8	(2.9)	30.6	(2.8)	20.8	(2.5)	0.5	(0.4)	0.1	(0.2)
			90.7	(1.8)	51.9	(3.0)	21.4	(2.5)	0.6	(0.5)	0.1	(0.2)
Quebec (E)	9.2	(2.0)	25.5	(3.0)	23.4	(2.9)	39.4	(3.3)	2.4	(1.1)	0.0	(0.0)
			90.8	(2.0)	65.3	(3.3)	41.9	(3.4)	2.4	(1.1)	0.0	(0.0)
Quebec (F)	7.1	(1.6)	14.6	(2.2)	29.6	(2.9)	46.2	(3.1)	2.4	(1.0)	0.1	(0.2)
			92.9	(1.6)	78.3	(2.6)	48.7	(3.2)	2.5	(1.0)	0.1	(0.2)
New Brunswick (E)	12.1	(2.2)	33.3	(3.1)	36.1	(3.2)	18.0	(2.6)	0.5	(0.5)	0.0	(0.0)
			87.9	(2.2)	54.6	(3.3)	18.5	(2.6)	0.5	(0.5)	0.0	(0.0)
New Brunswick (F)	9.7	(1.8)	27.1	(2.7)	30.0	(2.8)	32.6	(2.9)	0.6	(0.5)	0.0	(0.0)
			90.3	(1.8)	63.2	(3.0)	33.2	(2.9)	0.6	(0.5)	0.0	(0.0)
Nova Scotia (E)	11.7	(2.1)	35.2	(3.2)	35.8	(3.2)	16.8	(2.5)	0.5	(0.4)	0.0	(0.0)
			88.3	(2.1)	53.0	(3.3)	17.3	(2.5)	0.5	(0.4)	0.0	(0.0)
Nova Scotia (F)	6.9	(—)	27.1	(—)	29.9	(—)	33.7	(—)	2.4	(—)	0.0	(—)
			93.1	(—)	66.0	(—)	36.1	(—)	2.4	(—)	0.0	(—)
Prince Edward Island	12.2	(2.1)	34.2	(3.0)	38.3	(3.1)	14.7	(2.3)	0.6	(0.5)	0.0	(0.0)
			87.8	(2.1)	53.6	(3.2)	15.3	(2.3)	0.6	(0.5)	0.0	(0.0)
Newfoundland and Labrador	11.1	(2.1)	31.9	(3.1)	33.0	(3.1)	23.1	(2.8)	0.9	(0.6)	0.0	(0.0)
			88.9	(2.1)	56.9	(3.3)	24.0	(2.8)	0.9	(0.6)	0.0	(0.0)
Northwest Territories	38.7	(4.4)	29.9	(4.1)	21.7	(3.7)	9.7	(2.7)	0.0	(0.0)	0.0	(0.0)
			61.3	(4.4)	31.4	(4.2)	9.7	(2.7)	0.0	(0.0)	0.0	(0.0)
Yukon	8.7	(3.1)	25.8	(4.8)	33.5	(5.2)	30.9	(5.1)	1.0	(1.1)	0.0	(0.0)
			91.3	(3.1)	65.4	(5.2)	31.9	(5.1)	1.0	(1.1)	0.0	(0.0)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted to be representative of jurisdictions.

TABLE 22: SAIP MATHEMATICS II (1997) — MATHEMATICS CONTENT PERCENTAGE OF 16-YEAR-OLDS BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	6.3	(1.6)	18.3	(2.5)	20.9	(2.6)	41.9	(3.2)	8.6	(1.8)	4.1	(1.3)
			93.7	(1.6)	75.5	(2.8)	54.6	(3.2)	12.7	(2.2)	4.1	(1.3)
Alberta	4.0	(1.3)	14.0	(2.3)	20.6	(2.7)	45.4	(3.3)	12.3	(2.2)	3.7	(1.2)
			96.0	(1.3)	82.0	(2.5)	61.4	(3.2)	16.0	(2.4)	3.7	(1.2)
Saskatchewan	8.4	(1.9)	17.9	(2.6)	23.7	(2.8)	42.1	(3.3)	6.8	(1.7)	1.0	(0.7)
			91.6	(1.9)	73.7	(2.9)	50.0	(3.3)	7.9	(1.8)	1.0	(0.7)
Manitoba (E)	5.0	(1.5)	20.4	(2.8)	21.3	(2.9)	43.7	(3.5)	7.4	(1.8)	2.3	(1.0)
			95.0	(1.5)	74.7	(3.0)	53.4	(3.5)	9.7	(2.1)	2.3	(1.0)
Manitoba (F)	2.0	(1.6)	13.3	(3.8)	23.5	(4.8)	51.4	(5.7)	7.8	(3.0)	2.0	(1.6)
			98.0	(1.6)	84.7	(4.1)	61.2	(5.5)	9.8	(3.4)	2.0	(1.6)
Ontario (E)	5.9	(1.5)	20.9	(2.6)	21.2	(2.6)	42.7	(3.1)	7.0	(1.6)	2.4	(1.0)
			94.1	(1.5)	73.2	(2.8)	52.0	(3.2)	9.3	(1.8)	2.4	(1.0)
Ontario (F)	7.0	(1.7)	24.3	(2.8)	19.6	(2.6)	43.8	(3.2)	5.0	(1.4)	0.4	(0.4)
			93.0	(1.7)	68.7	(3.0)	49.2	(3.3)	5.4	(1.5)	0.4	(0.4)
Quebec (E)	3.5	(1.3)	10.9	(2.3)	11.3	(2.3)	52.4	(3.7)	17.6	(2.8)	4.3	(1.5)
			96.5	(1.3)	85.6	(2.6)	74.3	(3.2)	21.9	(3.0)	4.3	(1.5)
Quebec (F)	2.2	(1.0)	5.0	(1.5)	11.8	(2.2)	52.9	(3.4)	22.4	(2.8)	5.6	(1.6)
			97.8	(1.0)	92.8	(1.8)	81.0	(2.7)	28.1	(3.1)	5.6	(1.6)
New Brunswick (E)	7.2	(1.8)	20.5	(2.8)	25.1	(3.0)	38.9	(3.4)	6.6	(1.7)	1.8	(0.9)
			92.8	(1.8)	72.4	(3.1)	47.3	(3.5)	8.4	(1.9)	1.8	(0.9)
New Brunswick (F)	3.9	(1.3)	12.2	(2.2)	20.4	(2.6)	50.6	(3.3)	12.0	(2.1)	0.8	(0.6)
			96.1	(1.3)	83.8	(2.4)	63.4	(3.2)	12.8	(2.2)	0.8	(0.6)
Nova Scotia (E)	5.1	(1.6)	16.6	(2.6)	21.0	(2.9)	48.9	(3.5)	7.7	(1.9)	0.7	(0.6)
			94.9	(1.6)	78.2	(2.9)	57.3	(3.5)	8.4	(2.0)	0.7	(0.6)
Nova Scotia (F)	2.0	(—)	7.8	(—)	14.1	(—)	57.1	(—)	18.0	(—)	1.0	(—)
			98.0	(—)	90.2	(—)	76.1	(—)	19.0	(—)	1.0	(—)
Prince Edward Island	7.4	(1.9)	23.5	(3.1)	20.5	(2.9)	44.4	(3.6)	3.5	(1.3)	0.6	(0.5)
			92.6	(1.9)	69.0	(3.4)	48.5	(3.6)	4.1	(1.4)	0.6	(0.5)
Newfoundland and Labrador	9.2	(2.0)	22.4	(2.9)	25.4	(3.0)	35.9	(3.3)	5.5	(1.6)	1.7	(0.9)
			90.8	(2.0)	68.4	(3.2)	43.0	(3.4)	7.2	(1.8)	1.7	(0.9)
Northwest Territories	18.9	(4.7)	28.8	(5.4)	14.4	(4.2)	33.3	(5.6)	3.6	(2.2)	0.9	(1.1)
			81.1	(4.7)	52.3	(5.9)	37.8	(5.8)	4.5	(2.5)	0.9	(1.1)
Yukon	7.6	(4.1)	16.6	(5.8)	16.6	(5.8)	49.1	(7.8)	7.6	(4.1)	2.4	(2.4)
			92.4	(4.1)	75.8	(6.7)	59.2	(7.7)	10.0	(4.7)	2.4	(2.4)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted to be representative of jurisdictions.

TABLE 23: SAIP MATHEMATICS II (1997) — PROBLEM SOLVING
PERCENTAGE OF 13-YEAR-OLDS BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	19.1	(2.4)	33.0	(2.9)	33.8	(2.9)	11.7	(2.0)	2.1	(0.9)	0.2	(0.3)
			80.9	(2.4)	47.8	(3.1)	14.0	(2.1)	2.3	(0.9)	0.2	(0.3)
Alberta	12.8	(2.1)	29.4	(2.9)	38.0	(3.1)	16.7	(2.3)	2.7	(1.0)	0.4	(0.4)
			87.2	(2.1)	57.8	(3.1)	19.8	(2.5)	3.1	(1.1)	0.4	(0.4)
Saskatchewan	17.1	(2.4)	31.7	(3.0)	39.9	(3.2)	10.0	(1.9)	1.2	(0.7)	0.1	(0.2)
			82.9	(2.4)	51.2	(3.2)	11.3	(2.0)	1.3	(0.7)	0.1	(0.2)
Manitoba (E)	19.1	(2.6)	35.8	(3.2)	33.3	(3.1)	10.2	(2.0)	1.4	(0.8)	0.3	(0.4)
			80.9	(2.6)	45.2	(3.3)	11.9	(2.2)	1.7	(0.9)	0.3	(0.4)
Manitoba (F)	13.9	(2.3)	34.1	(3.1)	35.3	(3.2)	15.7	(2.4)	1.1	(0.7)	0.0	(0.0)
			86.1	(2.3)	52.1	(3.3)	16.8	(2.5)	1.1	(0.7)	0.0	(0.0)
Ontario (E)	18.3	(2.4)	36.3	(3.0)	34.9	(2.9)	9.2	(1.8)	1.2	(0.7)	0.1	(0.2)
			81.7	(2.4)	45.4	(3.1)	10.5	(1.9)	1.3	(0.7)	0.1	(0.2)
Ontario (F)	19.2	(2.4)	37.8	(3.0)	32.4	(2.9)	9.6	(1.8)	1.0	(0.6)	0.0	(0.0)
			80.8	(2.4)	43.0	(3.0)	10.6	(1.9)	1.0	(0.6)	0.0	(0.0)
Quebec (E)	15.0	(2.5)	27.1	(3.1)	40.5	(3.4)	14.5	(2.5)	2.5	(1.1)	0.4	(0.4)
			85.0	(2.5)	57.9	(3.4)	17.4	(2.6)	2.9	(1.2)	0.4	(0.4)
Quebec (F)	9.3	(1.8)	23.9	(2.7)	42.3	(3.1)	19.4	(2.5)	4.6	(1.3)	0.5	(0.5)
			90.7	(1.8)	66.8	(3.0)	24.5	(2.7)	5.1	(1.4)	0.5	(0.5)
New Brunswick (E)	17.1	(2.5)	35.7	(3.2)	35.5	(3.2)	10.2	(2.0)	1.4	(0.8)	0.2	(0.3)
			82.9	(2.5)	47.2	(3.3)	11.8	(2.1)	1.6	(0.8)	0.2	(0.3)
New Brunswick (F)	13.5	(2.1)	33.3	(2.9)	37.1	(3.0)	14.6	(2.2)	1.5	(0.8)	0.0	(0.0)
			86.5	(2.1)	53.2	(3.1)	16.1	(2.3)	1.5	(0.8)	0.0	(0.0)
Nova Scotia (E)	17.9	(2.5)	36.2	(3.2)	34.6	(3.2)	10.3	(2.0)	1.1	(0.7)	0.0	(0.0)
			82.1	(2.5)	46.0	(3.3)	11.4	(2.1)	1.1	(0.7)	0.0	(0.0)
Nova Scotia (F)	18.3	(—)	33.6	(—)	32.2	(—)	14.2	(—)	1.7	(—)	0.0	(—)
			81.7	(—)	48.1	(—)	15.9	(—)	1.7	(—)	0.0	(—)
Prince Edward Island	15.9	(2.4)	34.9	(3.1)	36.0	(3.1)	12.2	(2.1)	1.1	(0.7)	0.0	(0.0)
			84.1	(2.4)	49.3	(3.2)	13.3	(2.2)	1.1	(0.7)	0.0	(0.0)
Newfoundland and Labrador	21.7	(2.7)	34.8	(3.2)	33.6	(3.2)	9.4	(1.9)	0.6	(0.5)	0.0	(0.0)
			78.3	(2.7)	43.6	(3.3)	10.0	(2.0)	0.6	(0.5)	0.0	(0.0)
Northwest Territories	45.4	(4.6)	27.1	(4.1)	21.4	(3.8)	5.8	(2.2)	0.3	(0.5)	0.0	(0.0)
			54.6	(4.6)	27.5	(4.1)	6.1	(2.2)	0.3	(0.5)	0.0	(0.0)
Yukon	26.7	(4.6)	32.6	(4.9)	28.7	(4.7)	10.2	(3.2)	1.4	(1.2)	0.4	(0.7)
			73.3	(4.6)	40.7	(5.2)	12.0	(3.4)	1.8	(1.4)	0.4	(0.7)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted to be representative of jurisdictions.

TABLE 24: SAIP MATHEMATICS II (1997) — PROBLEM SOLVING
PERCENTAGE OF 16-YEAR-OLDS BY PERFORMANCE LEVEL AND BY POPULATION

	Below 1		*Level 1*		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
British Columbia	11.6	(2.1)	20.1	(2.6)	37.1	(3.2)	21.2	(2.7)	8.2	(1.8)	1.8	(0.9)
			88.4	(2.1)	68.3	(3.0)	31.2	(3.0)	9.9	(2.0)	1.8	(0.9)
Alberta	7.2	(1.7)	14.2	(2.3)	33.7	(3.1)	30.2	(3.0)	11.7	(2.1)	2.9	(1.1)
			92.8	(1.7)	78.6	(2.7)	44.8	(3.3)	14.6	(2.3)	2.9	(1.1)
Saskatchewan	7.9	(1.8)	18.6	(2.7)	34.9	(3.2)	27.8	(3.1)	9.5	(2.0)	1.3	(0.8)
			92.1	(1.8)	73.5	(3.0)	38.6	(3.3)	10.9	(2.1)	1.3	(0.8)
Manitoba (E)	6.7	(1.8)	16.6	(2.6)	36.5	(3.4)	30.3	(3.2)	8.2	(1.9)	1.8	(0.9)
			93.3	(1.8)	76.7	(3.0)	40.2	(3.5)	10.0	(2.1)	1.8	(0.9)
Manitoba (F)	3.4	(2.0)	17.7	(4.2)	33.6	(5.2)	37.3	(5.4)	7.2	(2.9)	0.8	(1.0)
			96.6	(2.0)	78.9	(4.5)	45.3	(5.5)	7.9	(3.0)	0.8	(1.0)
Ontario (E)	8.0	(1.7)	19.2	(2.5)	39.9	(3.1)	23.0	(2.7)	7.2	(1.6)	2.8	(1.0)
			92.0	(1.7)	72.9	(2.8)	33.0	(3.0)	10.0	(1.9)	2.8	(1.0)
Ontario (F)	8.8	(1.9)	20.8	(2.7)	42.6	(3.3)	21.7	(2.7)	5.5	(1.5)	0.5	(0.5)
			91.2	(1.9)	70.3	(3.0)	27.8	(3.0)	6.1	(1.6)	0.5	(0.5)
Quebec (E)	6.8	(1.8)	15.0	(2.6)	31.8	(3.3)	28.2	(3.2)	15.2	(2.6)	3.1	(1.2)
			93.2	(1.8)	78.2	(3.0)	46.5	(3.6)	18.3	(2.8)	3.1	(1.2)
Quebec (F)	3.7	(1.3)	9.4	(2.0)	29.9	(3.1)	36.2	(3.3)	18.5	(2.6)	2.3	(1.0)
			96.3	(1.3)	86.9	(2.3)	57.0	(3.4)	20.7	(2.7)	2.3	(1.0)
New Brunswick (E)	8.8	(2.0)	19.8	(2.8)	37.8	(3.4)	24.9	(3.0)	7.7	(1.9)	1.0	(0.7)
			91.2	(2.0)	71.4	(3.2)	33.6	(3.3)	8.7	(2.0)	1.0	(0.7)
New Brunswick (F)	7.6	(1.7)	19.2	(2.6)	36.1	(3.2)	26.7	(2.9)	8.9	(1.9)	1.5	(0.8)
			92.4	(1.7)	73.2	(2.9)	37.1	(3.2)	10.4	(2.0)	1.5	(0.8)
Nova Scotia (E)	7.8	(1.9)	17.6	(2.7)	37.8	(3.5)	27.5	(3.2)	8.7	(2.0)	0.5	(0.5)
			92.2	(1.9)	74.6	(3.1)	36.8	(3.5)	9.2	(2.1)	0.5	(0.5)
Nova Scotia (F)	1.0	(1.4)	15.0	(—)	39.8	(—)	33.5	(—)	8.7	(—)	1.9	(—)
			99.0	(—)	84.0	(—)	44.2	(—)	10.7	(—)	1.9	(—)
Prince Edward Island	12.5	(2.4)	22.7	(3.0)	37.3	(3.5)	21.8	(3.0)	4.8	(1.5)	0.9	(0.7)
			87.5	(2.4)	64.8	(3.5)	27.5	(3.2)	5.7	(1.7)	0.9	(0.7)
Newfoundland and Labrador	11.1	(2.2)	21.3	(2.8)	36.7	(3.3)	23.6	(2.9)	6.7	(1.7)	0.5	(0.5)
			88.9	(2.2)	67.6	(3.2)	30.8	(3.2)	7.2	(1.8)	0.5	(0.5)
Northwest Territories	23.9	(5.3)	27.8	(5.6)	29.8	(5.7)	13.6	(4.3)	3.9	(2.4)	1.0	(1.2)
			76.1	(5.3)	48.3	(6.2)	18.5	(4.8)	4.9	(2.7)	1.0	(1.2)
Yukon	11.7	(4.8)	22.0	(6.2)	35.5	(7.2)	16.6	(5.6)	12.7	(5.0)	1.5	(1.8)
			88.3	(4.8)	66.3	(7.1)	30.8	(6.9)	14.2	(5.2)	1.5	(1.8)

Note: For each population, the first line shows the percentage of students by highest level achieved. The second line shows the cumulative percentage of students at or above each level. The confidence intervals (± 1.96 times the standard errors) for the first and second lines respectively are between parentheses. Results are weighted to be representative of jurisdictions.

TABLE 25: COMPARISON SAIP 1997 AND 2001 — MATHEMATICS CONTENT CANADA — PERCENTAGE OF 13-YEAR-OLDS BY PERFORMANCE LEVEL AND BY YEAR OF ASSESSMENT

	Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
1997	90.0	(0.5)	59.4	(0.8)	28.4	(0.8)	1.2	(0.2)	0.0	(0.0)
2001	88.3	(0.6)	64.4	(0.8)	27.9	(0.8)	1.3	(0.2)	0.1	(0.1)

TABLE 26: COMPARISON SAIP 1997 AND 2001 — PROBLEM SOLVING CANADA — PERCENTAGE OF 13-YEAR-OLDS BY PERFORMANCE LEVEL AND BY YEAR OF ASSESSMENT

	Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
1997	84.2	(0.6)	52.2	(0.9)	15.3	(0.6)	2.5	(0.3)	0.2	(0.1)
2001	86.7	(0.6)	67.6	(0.9)	25.4	(0.8)	3.8	(0.4)	0.5	(0.1)

TABLE 27: COMPARISON SAIP 1997 AND 2001 — MATHEMATICS CONTENT CANADA — PERCENTAGE OF 16-YEAR-OLDS BY PERFORMANCE LEVEL AND BY YEAR OF ASSESSMENT

	Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
1997 with QC	94.9	(0.4)	78.9	(0.8)	59.8	(0.9)	14.5	(0.7)	3.3	(0.3)
1997 without QC	94.1	(0.5)	74.8	(0.9)	53.5	(1.0)	10.5	(0.6)	2.6	(0.3)
2001 without QC	91.5	(0.6)	77.5	(0.9)	49.7	(1.0)	11.0	(0.6)	2.7	(0.3)

TABLE 28: COMPARISON SAIP 1997 AND 2001 — PROBLEM SOLVING CANADA — PERCENTAGE OF 16-YEAR-OLDS BY PERFORMANCE LEVEL AND BY YEAR OF ASSESSMENT

	Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
1997 with QC	92.5	(0.5)	75.9	(0.8)	39.8	(0.9)	12.8	(0.6)	2.3	(0.3)
1997 without QC	91.4	(0.6)	72.8	(0.9)	34.9	(1.0)	10.4	(0.6)	2.2	(0.3)
2001 without QC	91.0	(0.6)	80.4	(0.9)	47.1	(1.1)	14.8	(0.8)	3.5	(0.4)