EQAO Reports
Grade 9 Mathematics

A Guide for Administrators

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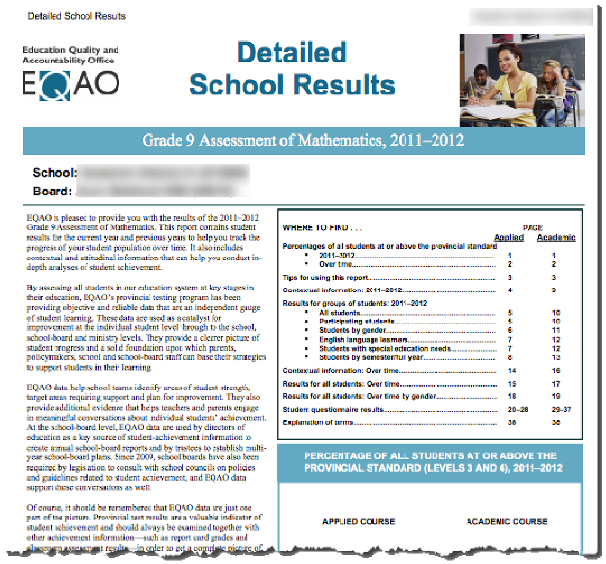
Detailed School Results

Education Quality and Accountability Office

EQAO

Detailed School Results

Grade 9 Assessment of Mathematics, 2011–2012

School:

Board:

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PERCENTAGE OF ALL STUDENTS AT OR ABOVE THE PROVINCIAL STANDARD (LEVELS 3 AND 4), 2011–2012

APPLIED COURSE

ACADEMIC COURSE

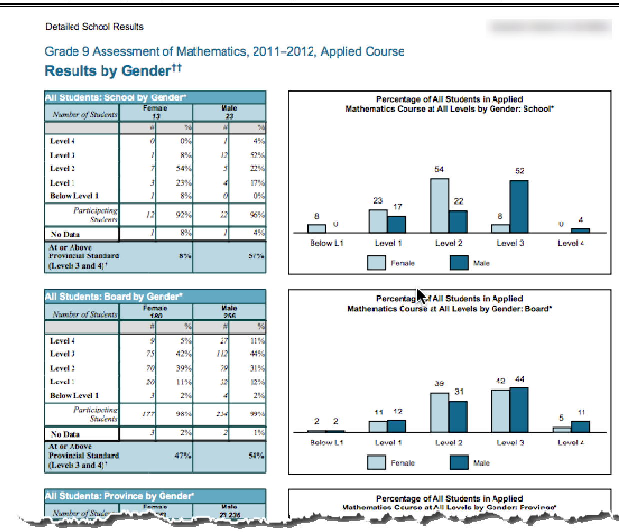
What the report shows:

- Percentages of all students at or above the provincial standard
- Percentages of all students at or above the provincial standard over time
- Contextual information
- Breakdown for sub groups of students (participating students, gender, English Language Learners, Special Education Needs)
- Contextual Information over time
- Results of all students over time by gender
- Results by semester/full year
- Student questionnaire results
- This report is first released as a Preliminary report and later re-released with Provincial results

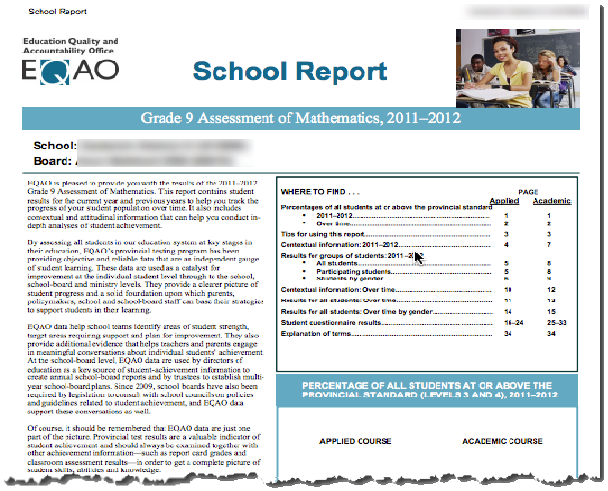
The Public report contains some of this information, but suppresses data for small groups of students as well as for some sub groups (e.g. ELL, Special Education)

How to use the report:

- ✓ Examine the contextual information.
- ✓ How do the school results compare to the board results? The provincial results?
- ✓ Are there any changes, trends or inconsistencies in the school results over time?
- ✓ How do the school results compare for female and male students?
- ✓ Try to account for any trends, patterns or inconsistencies.
- ✓ Have there been any new initiatives or any changes in programs or resources at the school?
- ✓ How well is the range of students' needs being addressed in the school (e.g., students withSpecial Education needs, English Language Learners)?
- ✓ Consider how these results are being addressed and communicated.
- ✓ What are the school's goals for improvement?



Public Report (for Public release)


School Report

Education Quality and Accountability Office

EQAO

School Report

Grade 9 Assessment of Mathematics, 2011–2012

School:

Board:

WHERE TO FIND . . . PAGE

	Applied	Academic
Percentages of all students at or above the provincial standard		
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PERCENTAGE OF ALL STUDENTS AT OR ABOVE THE PROVINCIAL STANDARD (LEVELS 3 AND 4), 2011–2012

APPLIED COURSE ACADEMIC COURSE

What the report shows:

- Percentages of all students at or above the provincial standard
- Percentages of all students at or above the provincial standard over time
- Contextual information
- Breakdown for sub groups of students (participating students, gender)
- Contextual Information over time
- Results of all students over time by gender
- Student questionnaire results

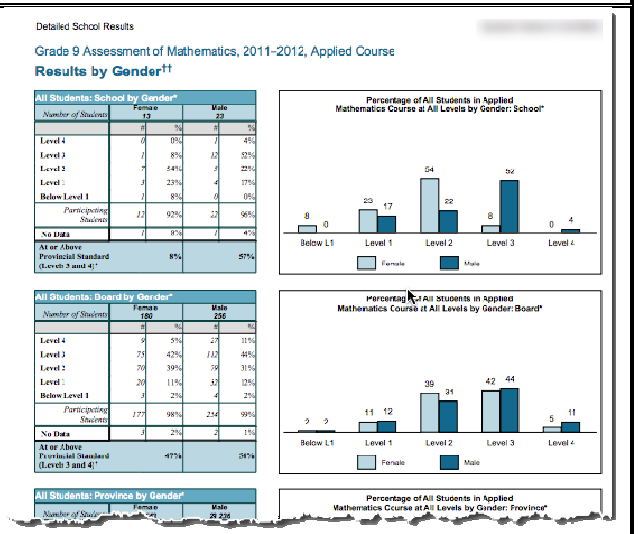
How to use the report:

Who should the EQAO Public Report be shared with:

- ✓ Students, parents, school staff, trustees, school councils, community members and board leaders.

How to share results with the community

- ✓ Inform the community of the board's mission and vision statements
- ✓ Review results in light of previous school or board improvement plans
- ✓ Share information and results with the community and within the system
- ✓ Set a context and invite conversation about analysis, interpretation and next steps.


Detailed School Results

Grade 9 Assessment of Mathematics, 2011–2012, Applied Course

Results by Gender††

All Students: School by Gender*

Number of Students	Female 13		Male 23	
	#	%	#	%
Level 4	0	0%	1	4%
Level 3	7	54%	12	52%
Level 2	3	23%	4	17%
Level 1	1	8%	0	0%
Participating Students	12	92%	22	96%
No Data	1	8%	1	4%
At or Above Provincial Standard (Levels 3 and 4)†	85%		57%	

Percentage of All Students in Applied Mathematics Course at All Levels by Gender: School*

All Students: Board by Gender*

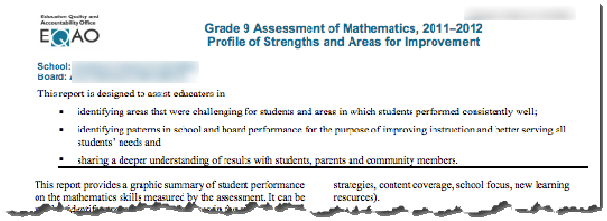
Number of Students	Female 180		Male 256	
	#	%	#	%
Level 4	9	5%	27	11%
Level 3	75	42%	112	44%
Level 2	70	39%	79	31%
Level 1	20	11%	32	12%
Below Level 1	3	2%	4	2%
Participating Students	177	98%	254	99%
No Data	3	2%	2	1%
At or Above Provincial Standard (Levels 3 and 4)†	47%		54%	

Percentage of All Students in Applied Mathematics Course at All Levels by Gender: Board*

All Students: Province by Gender*

Percentage of All Students in Applied Mathematics Course at All Levels by Gender: Province*

Profile of Strengths and Areas of Improvement(for internal school and Board use only)



Grade 9 Assessment of Mathematics, 2011–2012
Profile of Strengths and Areas for Improvement

School:
Board:

This report is designed to assist educators in

- identifying areas that were challenging for students and areas in which students performed consistently well;
- identifying patterns in school and board performance for the purpose of improving instruction and better serving all students' needs and
- sharing a deeper understanding of results with students, parents and community members.

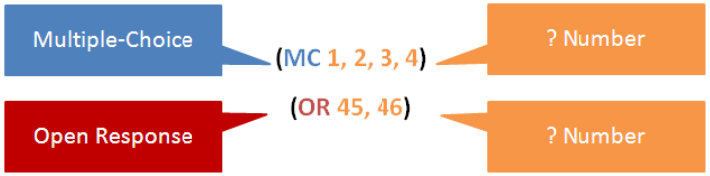
This report provides a graphic summary of student performance on the mathematics skills measured by the assessment. It can be [illegible] strategies, content coverage, school focus, new learning resources).

What the report shows:

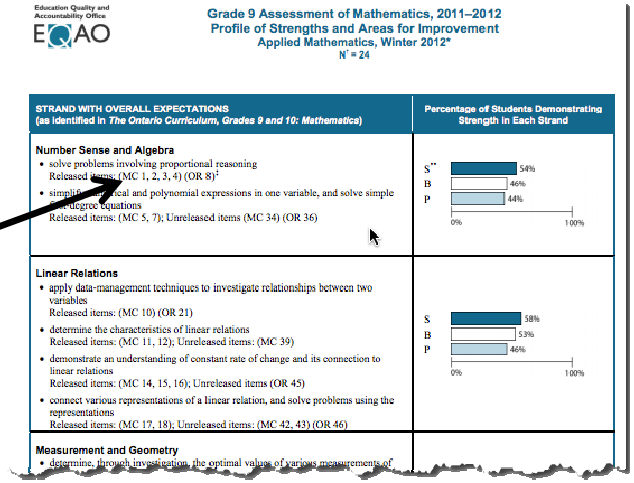
- areas that were challenging for students
- areas where students performed consistently well
- breakdown by expectation, strand, and skill
- comparison of school to board and province

How to use the report:

- ✓ Identify areas of strengths and weaknesses in mathematics
- ✓ Identify your school's urgent learning need
- ✓ Compare results to previous years to look for a pattern or trend
- ✓ Select a learning focus by strand (e.g. Number Sense and Algebra).
- ✓ Align the multiple choice and open response questions given in the Profile (from the identifiedfocus)with the questions in the Student Assessment Booklets and Scoring Guides.



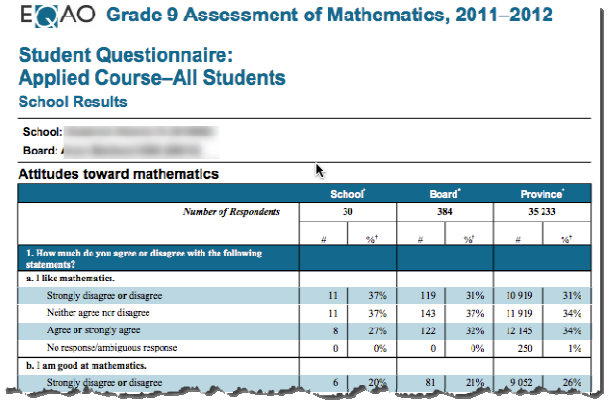
- ✓ To address the urgent learning need, encourage teachers to embed test questions and examples of student answers into instruction.



Grade 9 Assessment of Mathematics, 2011–2012
Profile of Strengths and Areas for Improvement
Applied Mathematics, Winter 2012*
N = 24

STRAND WITH OVERALL EXPECTATIONS (as identified in *The Ontario Curriculum, Grades 9 and 10: Mathematics*)	Percentage of Students Demonstrating Strength in Each Strand
Number Sense and Algebra • solve problems involving proportional reasoning Released items: (MC 1, 2, 3, 4) (OR 8)[2] • simplify algebraic and polynomial expressions in one variable, and solve simple [illegible]-degree equations Released items: (MC 5, 7); Unreleased items (MC 34) (OR 36)	S 54% B 46% P 44% 0% 100%
Linear Relations • apply data-management techniques to investigate relationships between two variables Released items: (MC 10) (OR 21) • determine the characteristics of linear relations Released items: (MC 11, 12); Unreleased items: (MC 39) • demonstrate an understanding of constant rate of change and its connection to linear relations Released items: (MC 14, 15, 16); Unreleased items (OR 45) • connect various representations of a linear relation, and solve problems using the representations Released items: (MC 17, 18); Unreleased items: (MC 42, 43) (OR 46)	S 58% B 53% P 46% 0% 100%
Measurement and Geometry • determine, through investigation, the optimal values of various measurements of	

Student Questionnaire Results(for internal school and Board use only)



EQAO Grade 9 Assessment of Mathematics, 2011–2012

Student Questionnaire:
Applied Course–All Students

School Results

School: [redacted]
Board: [redacted]

Attitudes toward mathematics

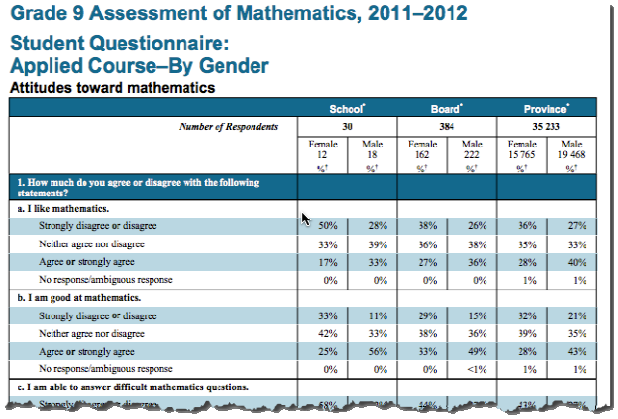
Number of Respondents	School* 30		Board* 384		Province* 35 233	
	#	%†	#	%†	#	%†
1. How much do you agree or disagree with the following statements?						
a. I like mathematics.						
Strongly disagree or disagree	11	37%	119	31%	10 919	31%
Neither agree nor disagree	11	37%	143	37%	11 919	34%
Agree or strongly agree	8	27%	122	32%	12 145	34%
No response/ambiguous response	0	0%	0	0%	250	1%
b. I am good at mathematics.						
Strongly disagree or disagree	6	20%	81	21%	9 052	26%

What the report shows:

- Student characteristics (age, language spoken)
- Attitudes toward learning
- Perception of performance
- Use of technology at school
- Home support

How to use the report:

- ✓ Examine the results for each factor.
- ✓ Are there any differences in responses of male and female students?
- ✓ Is there a pattern of positive or negative perceptions?
- ✓ How do your school results compare to those of the board and province?
- ✓ How might student achievement, improvement planning and school programs be affected by student perceptions?
- ✓ Discuss student results for specific questions with the teachers in your school (e.g. I apply new mathematics concepts to real life problems, I check my mathematics answers to see if they make sense).



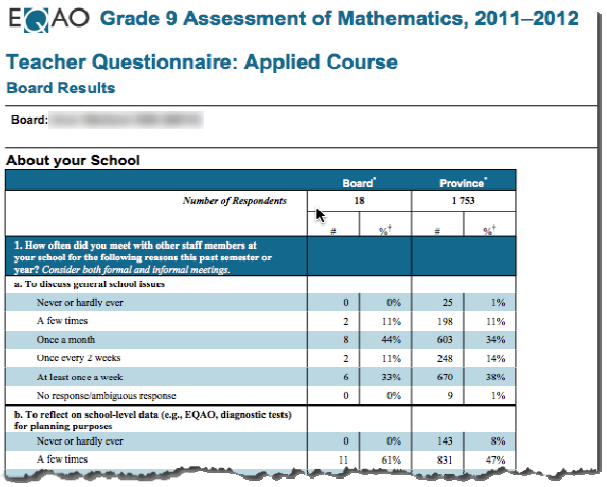
Grade 9 Assessment of Mathematics, 2011–2012

Student Questionnaire:
Applied Course–By Gender

Attitudes toward mathematics

Number of Respondents	School* 30		Board* 384		Province* 35 233	
	Female 12 %†	Male 18 %†	Female 162 %†	Male 222 %†	Female 15 765 %†	Male 19 468 %†
1. How much do you agree or disagree with the following statements?						
a. I like mathematics.						
Strongly disagree or disagree	50%	28%	38%	26%	36%	27%
Neither agree nor disagree	33%	39%	36%	38%	35%	33%
Agree or strongly agree	17%	33%	27%	36%	28%	40%
No response/ambiguous response	0%	0%	0%	0%	1%	1%
b. I am good at mathematics.						
Strongly disagree or disagree	33%	11%	29%	15%	32%	21%
Neither agree nor disagree	42%	33%	38%	36%	39%	35%
Agree or strongly agree	25%	56%	33%	49%	28%	43%
No response/ambiguous response	0%	0%	0%	<1%	1%	1%
c. I am able to answer difficult mathematics questions.						
Strongly disagree or disagree	58%		54%		21%	

Teacher Questionnaire Results(for internal school and Board use only)



EQAO Grade 9 Assessment of Mathematics, 2011–2012

Teacher Questionnaire: Applied Course

Board Results

Board: [redacted]

About your School

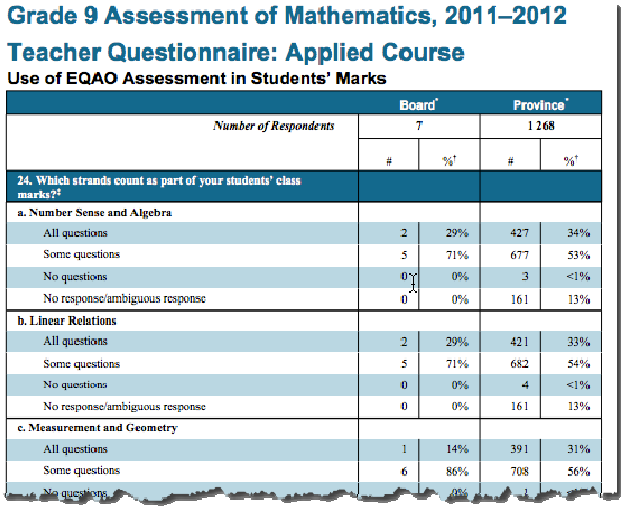
	Board*		Province*	
Number of Respondents	18		1 753	
	#	%†	#	%†
1. How often did you meet with other staff members at your school for the following reasons this past semester or year? *Consider both formal and informal meetings.*				
a. To discuss general school issues				
Never or hardly ever	0	0%	25	1%
A few times	2	11%	198	11%
Once a month	8	44%	603	34%
Once every 2 weeks	2	11%	248	14%
At least once a week	6	33%	670	38%
No response/ambiguous response	0	0%	9	1%
b. To reflect on school-level data (e.g., EQAO, diagnostic tests) for planning purposes				
Never or hardly ever	0	0%	143	8%
A few times	11	61%	831	47%

What the report shows:

- Classroom characteristics
- Access to resources
- Use of resources for teaching and assessing mathematics
- Teacher collaboration
- Use of EQAO data and resources
- Teacher information (background, experience, qualifications, professional development)

How to use the report:

- ✓ Are there any similarities, differences, consistencies or inconsistencies in the perceptions of students and teachers about the learning environment in the school?
- ✓ As a principal, what are your perceptions of the learning environment in the school relative to those of the teachers in your school?



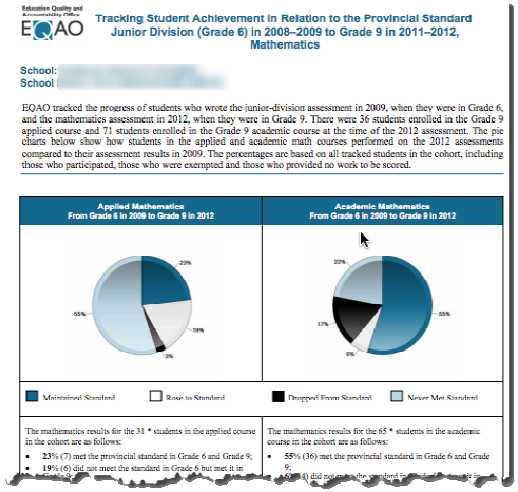
Grade 9 Assessment of Mathematics, 2011–2012

Teacher Questionnaire: Applied Course

Use of EQAO Assessment in Students' Marks

	Board*		Province*	
Number of Respondents	7		1 268	
	#	%†	#	%†
24. Which strands count as part of your students' class marks?‡				
a. Number Sense and Algebra				
All questions	2	29%	427	34%
Some questions	5	71%	677	53%
No questions	0	0%	3	<1%
No response/ambiguous response	0	0%	161	13%
b. Linear Relations				
All questions	2	29%	421	33%
Some questions	5	71%	682	54%
No questions	0	0%	4	<1%
No response/ambiguous response	0	0%	161	13%
c. Measurement and Geometry				
All questions	1	14%	391	31%
Some questions	6	86%	708	56%
No questions		0%		

Tracking a Cohort's Achievement/Four Achievement Pathways (for Public release)



Tracking Student Achievement in Relation to the Provincial Standard
Junior Division (Grade 6) in 2008–2009 to Grade 9 in 2011–2012,
Mathematics

School:
School

EQAO tracked the progress of students who wrote the junior-division assessment in 2009, when they were in Grade 6, and the mathematics assessment in 2012, when they were in Grade 9. There were 36 students enrolled in the Grade 9 applied course and 71 students enrolled in the Grade 9 academic course at the time of the 2012 assessment. The pie charts below show how students in the applied and academic math courses performed on the 2012 assessments compared to their assessment results in 2009. The percentages are based on all tracked students in the cohort, including those who participated, those who were exempted and those who provided no work to be scored.

Applied Mathematics
From Grade 6 in 2009 to Grade 9 in 2012

Academic Mathematics
From Grade 6 in 2009 to Grade 9 in 2012

Maintained Standard | Rose to Standard | Dropped From Standard | Never Met Standard

The mathematics results for the 31 * students in the applied course in the cohort are as follows:

- 23% (7) met the provincial standard in Grade 6 and Grade 9;
- 19% (6) did not meet the standard in Grade 6 but met it in

The mathematics results for the 65 * students in the academic course in the cohort are as follows:

- 55% (36) met the provincial standard in Grade 6 and Grade 9;
- [illegible] did not meet the standard in Grade 6 but met it in

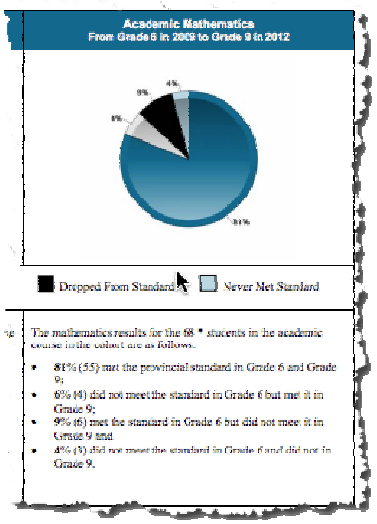
What the report shows:

Note: results for schools with fewer than 15 students in the cohort may be suppressed and appear as 'NR'

- Results of students who wrote the assessment in grade 9, compared to the junior-division assessment when they were in Grade 6

How to use the report:

- ✓ Consider the reports for students who were in any school in Grade 6 and in your school in Grade 9. Did the overall results improve, remain the same, or decline? How can you explain the direction of results?
- ✓ What actions can be taken to improve the outcomes for students who come into your school in the future?



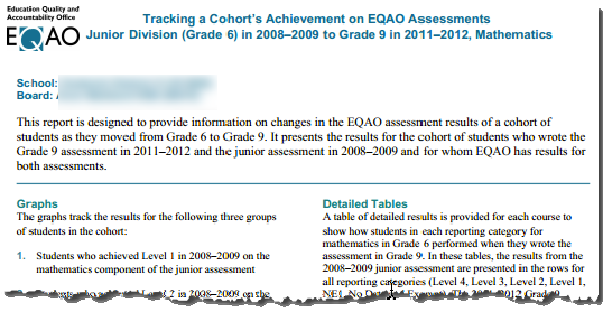
Academic Mathematics
From Grade 6 in 2009 to Grade 9 in 2012

Dropped From Standard | Never Met Standard

The mathematics results for the 68 * students in the academic course in the cohort are as follows:

- 81% (55) met the provincial standard in Grade 6 and Grade 9;
- 6% (4) did not meet the standard in Grade 6 but met it in Grade 9;
- 9% (6) met the standard in Grade 6 but did not meet it in Grade 9 and
- 4% (3) did not meet the standard in Grade 6 and did not in Grade 9.

Tracking a Cohort's Achievement by Grade 6 Achievement (for internal school and Board use only)



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Tracking a Cohort's Achievement on EQAO Assessments
Junior Division (Grade 6) in 2008–2009 to Grade 9 in 2011–2012, Mathematics

School:
Board:

This report is designed to provide information on changes in the EQAO assessment results of a cohort of students as they moved from Grade 6 to Grade 9. It presents the results for the cohort of students who wrote the Grade 9 assessment in 2011–2012 and the junior assessment in 2008–2009 and for whom EQAO has results for both assessments.

Graphs
The graphs track the results for the following three groups of students in the cohort:

1. Students who achieved Level 1 in 2008–2009 on the mathematics component of the junior assessment

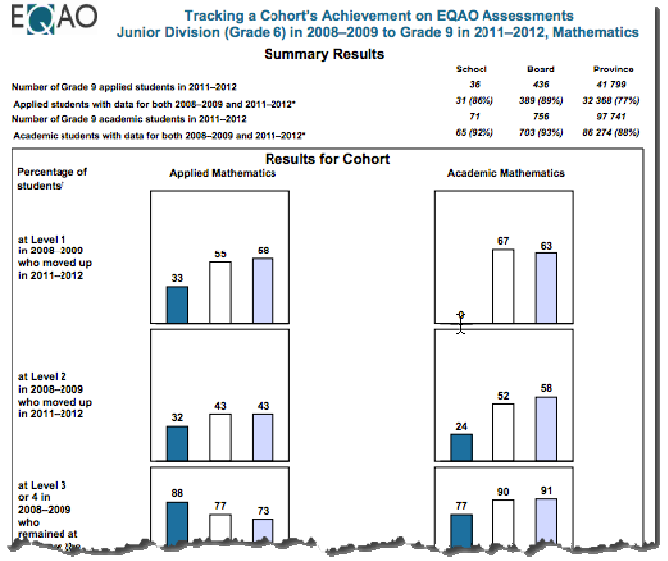
Detailed Tables
A table of detailed results is provided for each course to show how students in each reporting category for mathematics in Grade 6 performed when they wrote the assessment in Grade 9. In these tables, the results from the 2008–2009 junior assessment are presented in the rows for all reporting categories (Level 4, Level 3, Level 2, Level 1, NE) ...

What the resource shows:

- EQAO tracked the progress of students who wrote the junior-division assessment, and the grade 9 Assessment
- The percentages are based on all tracked students in the cohort, including those who participated, those who were exempted and those who provided no work to be scored
- A table of detailed results is provided for each course to show how students in each reporting category in Grade 6 performed when they wrote the assessment in Grade 9

How to use this resource:

- ✓ Consider the reports for students who were in any school in Grade 6 and in your school in Grade 9. Did the overall results improve, remain the same, or decline? How can you explain the direction of results?
- ✓ What actions can be taken to improve the outcomes for students who come into your school in the future?



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Tracking a Cohort's Achievement on EQAO Assessments
Junior Division (Grade 6) in 2008–2009 to Grade 9 in 2011–2012, Mathematics

Summary Results

	School	Board	Province
Number of Grade 9 applied students in 2011–2012	36	436	41 799
Applied students with data for both 2008–2009 and 2011–2012*	31 (86%)	389 (89%)	32 368 (77%)
Number of Grade 9 academic students in 2011–2012	71	756	97 741
Academic students with data for both 2008–2009 and 2011–2012*	65 (92%)	703 (93%)	86 274 (88%)

Results for Cohort

Percentage of students

Applied Mathematics

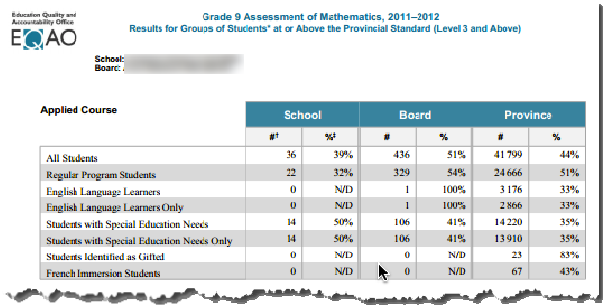
Academic Mathematics

at Level 1 in 2008–2009 who moved up in 2011–2012: 33, 55, 58 | 9, 67, 63

at Level 2 in 2008–2009 who moved up in 2011–2012: 32, 43, 43 | 24, 52, 58

at Level 3 or 4 in 2008–2009 who remained at ...: 88, 77, 73 | 77, 90, 91

Results for Groups of Students (for internal school and Board use only)



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Grade 9 Assessment of Mathematics, 2011–2012
Results for Groups of Students* at or Above the Provincial Standard (Level 3 and Above)

School:
Board:

Applied Course	School		Board		Province	
	#†	%‡	#	%	#	%
All Students	36	39%	436	51%	41 799	44%
Regular Program Students	22	32%	329	54%	24 666	51%
English Language Learners	0	N/D	1	100%	3 176	33%
English Language Learners Only	0	N/D	1	100%	2 866	33%
Students with Special Education Needs	14	50%	106	41%	14 220	35%
Students with Special Education Needs Only	14	50%	106	41%	13 910	35%
Students Identified as Gifted	0	N/D	0	N/D	23	83%
French Immersion Students	0	N/D	0	N/D	67	43%

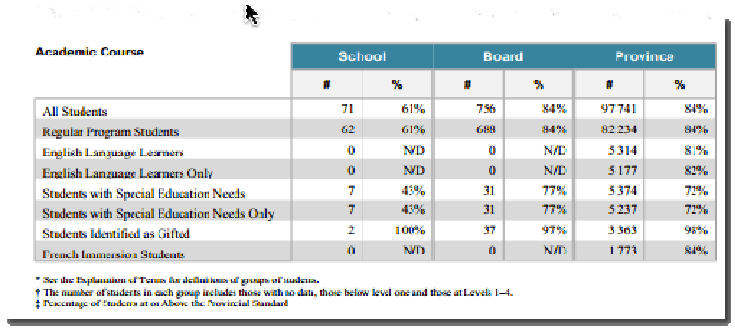
What the report shows:

Results for subgroups of students:

- All students
- Regular Program Students
- English Language Learners
- English Language Learners Only
- Students with Special Education Needs
- Students with Special Education Needs Only
- Students identified as Gifted
- French Immersion Students

How to use the report:

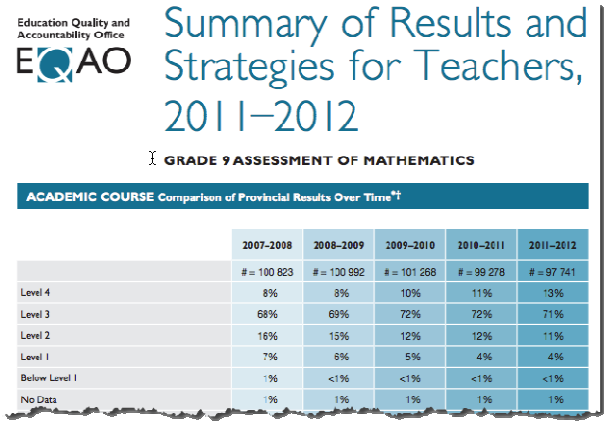
- ✓ Are there any differences in results for all students and subgroups of students (e.g., English language learners, students with special needs)?
- ✓ Can you identify groups of students requiring special attention, intervention or follow-up?
- ✓ Are these results consistent with other information you have about these students? Consider other sources of achievement information such as classroom assessments, student portfolios, and report cards.



Academic Course	School		Board		Province	
	#	%	#	%	#	%
All Students	71	61%	756	84%	97 741	84%
Regular Program Students	62	61%	688	84%	82 234	84%
English Language Learners	0	N/D	0	N/D	5 314	81%
English Language Learners Only	0	N/D	0	N/D	5 177	82%
Students with Special Education Needs	7	43%	31	77%	5 374	72%
Students with Special Education Needs Only	7	43%	31	77%	5 237	72%
Students Identified as Gifted	2	100%	37	97%	5 363	98%
French Immersion Students	0	N/D	0	N/D	1 771	84%

* See the Explanation of Terms for definitions of groups of students.
† The number of students in each group includes those with no data, those below level one and those at Levels 1–4.
‡ Percentage of Students at or Above the Provincial Standard

Summary of Results and Strategies for Teachers (Resource)



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Summary of Results and Strategies for Teachers, 2011–2012

GRADE 9 ASSESSMENT OF MATHEMATICS

ACADEMIC COURSE Comparison of Provincial Results Over Time[*†]

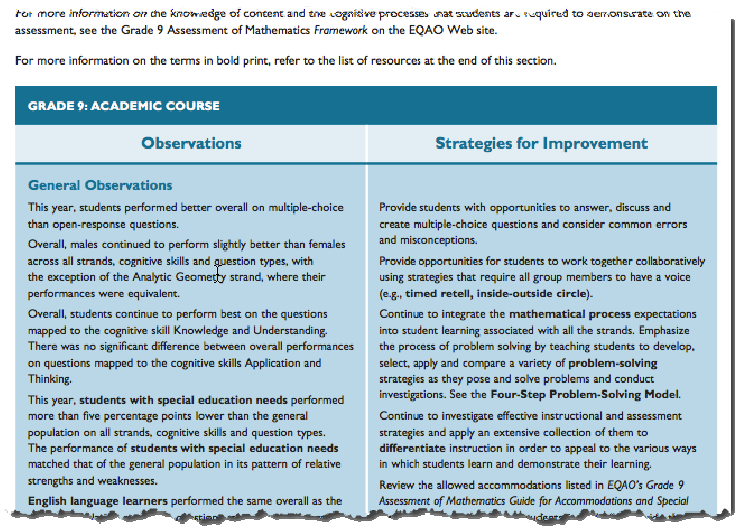
	2007–2008	2008–2009	2009–2010	2010–2011	2011–2012
	# = 100 823	# = 100 992	# = 101 268	# = 99 278	# = 97 741
Level 4	8%	8%	10%	11%	13%
Level 3	68%	69%	72%	72%	71%
Level 2	16%	15%	12%	12%	11%
Level 1	7%	6%	5%	4%	4%
Below Level 1	1%	<1%	<1%	<1%	<1%
No Data	1%	1%	1%	1%	1%

What the resource shows:

- Observations and strategies for improvement
- List of Resources for Mathematics
- Tracking Progress from Grade 3 to Grade 6 to Grade 9

How to use this resource:

The provided observations and suggested strategies for improvement are meant to assist educators in helping students develop and demonstrate their knowledge and skills in mathematics. The suggestions are based on an analysis of students' performance on the current year's Assessment of Mathematics, as well as on those of the previous four school years, and on feedback from teachers who scored the current assessment.



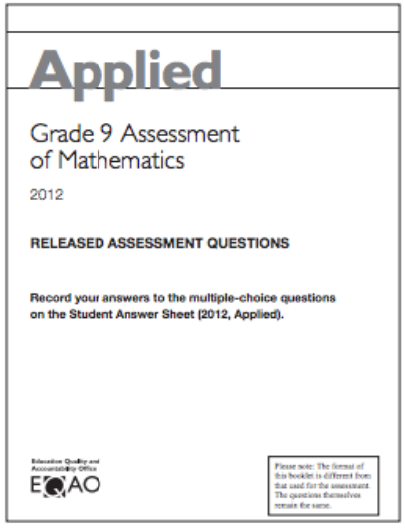
For more information on the knowledge of content and the cognitive processes that students are required to demonstrate on the assessment, see the Grade 9 Assessment of Mathematics *Framework* on the EQAO Web site.

For more information on the terms in bold print, refer to the list of resources at the end of this section.

GRADE 9: ACADEMIC COURSE

Observations	Strategies for Improvement
General Observations	
This year, students performed better overall on multiple-choice than open-response questions.	Provide students with opportunities to answer, discuss and create multiple-choice questions and consider common errors and misconceptions.
Overall, males continued to perform slightly better than females across all strands, cognitive skills and question types, with the exception of the Analytic Geometry strand, where their performances were equivalent.	Provide opportunities for students to work together collaboratively using strategies that require all group members to have a voice (e.g., **timed retell, inside-outside circle**).
Overall, students continue to perform best on the questions mapped to the cognitive skill Knowledge and Understanding. There was no significant difference between overall performances on questions mapped to the cognitive skills Application and Thinking.	Continue to integrate the **mathematical process** expectations into student learning associated with all the strands. Emphasize the process of problem solving by teaching students to develop, select, apply and compare a variety of **problem-solving** strategies as they pose and solve problems and conduct investigations. See the **Four-Step Problem-Solving Model**.
This year, **students with special education needs** performed more than five percentage points lower than the general population on all strands, cognitive skills and question types. The performance of **students with special education needs** matched that of the general population in its pattern of relative strengths and weaknesses.	Continue to investigate effective instructional and assessment strategies and apply an extensive collection of them to **differentiate** instruction in order to appeal to the various ways in which students learn and demonstrate their learning.
English language learners performed the same overall as the	Review the allowed accommodations listed in *EQAO's Grade 9 Assessment of Mathematics Guide for Accommodations and Special*

Student Assessment Booklets and Scoring Guides (Tests Questions and Examples of Student Answers)

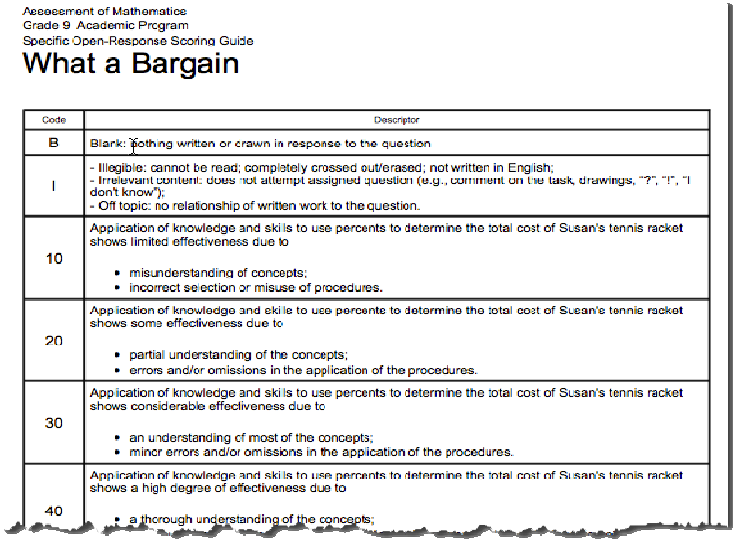


What the resource shows:

- Released assessment questions
- Scoring guides containing examples of student work for each score code
- Multiple choice answer keys to indicate the correct answers to multiple choice questions

How to use this resource:

- ✓ Embed selections and questions into instruction
- ✓ Include standardized test questions and the specific language that was used in the test throughout the year
- ✓ Share the exemplars with students so students can see how to improve their responses
- ✓ As indicated earlier, refer to the selections and questions as you consult other reports and resources



Assessment of Mathematics
Grade 9 Academic Program
Specific Open-Response Scoring Guide

What a Bargain

Code	Descriptor
B	Blank: nothing written or drawn in response to the question
I	- Illegible: cannot be read; completely crossed out/erased; not written in English; - Irrelevant content: does not attempt assigned question (e.g., comment on the task, drawings, "?", "!", "I don't know"); - Off topic: no relationship of written work to the question.
10	Application of knowledge and skills to use percents to determine the total cost of Susan's tennis racket shows limited effectiveness due to ▪ misunderstanding of concepts; ▪ incorrect selection or misuse of procedures.
20	Application of knowledge and skills to use percents to determine the total cost of Susan's tennis racket shows some effectiveness due to ▪ partial understanding of the concepts; ▪ errors and/or omissions in the application of the procedures.
30	Application of knowledge and skills to use percents to determine the total cost of Susan's tennis racket shows considerable effectiveness due to ▪ an understanding of most of the concepts; ▪ minor errors and/or omissions in the application of the procedures.
40	Application of knowledge and skills to use percents to determine the total cost of Susan's tennis racket shows a high degree of effectiveness due to ▪ a thorough understanding of the concepts;