

Summary of Results and Strategies for Teachers, 2010–2011

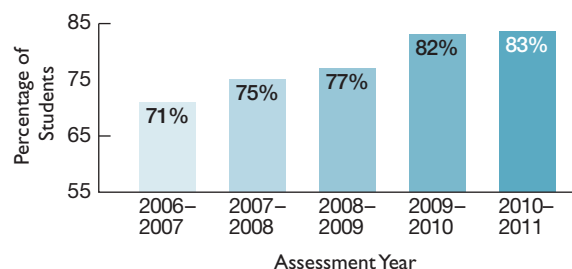
GRADE 9 ASSESSMENT OF MATHEMATICS

ACADEMIC COURSE Comparison of Provincial Results Over Time^{*†}

	2006–2007	2007–2008	2008–2009	2009–2010	2010–2011
	# = 103 011	# = 100 823	# = 100 992	# = 101 268	# = 99 278
Level 4	6%	8%	8%	10%	11%
Level 3	64%	68%	69%	72%	72%
Level 2	18%	16%	15%	12%	12%
Level 1	9%	7%	6%	5%	4%
Below Level 1	1%	1%	<1%	<1%	<1%
No Data	2%	1%	1%	1%	1%
At or Above the Provincial Standard [‡]	71%	75%	77%	82%	83%

- There were 99 278 Grade 9 students enrolled in the academic course at the time of the 2010–2011 assessment.
- The Grade 9 assessment is based on *The Ontario Curriculum, Grades 9 and 10: Mathematics* (revised 2005).

Percentage of All Students at or Above the Provincial Standard (Levels 3 and 4) Over Time



Observations

- Over the past five years, the percentage of students taking academic mathematics who performed at or above the provincial standard has been increasing (by 12 percentage points, from 71% to 83%).
- In 2010–2011, there was a slight increase of one percentage point from the previous year's percentage of students performing at or above the provincial standard in academic mathematics.

* Refer to the EQAO Web site (www.eqao.com) for data from previous years.

† Because percentages in tables and graphs are rounded, and because graphs do not show all reporting categories, percentages may not add up to 100.

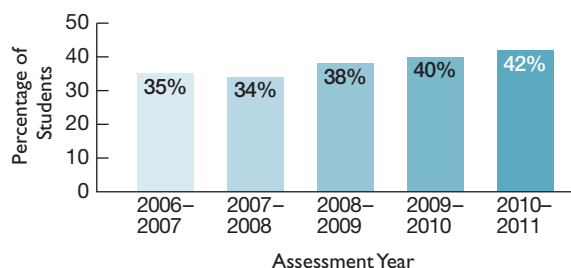
‡ These percentages are based on the actual number of students and cannot be calculated simply by adding the rounded percentages of students at Levels 3 and 4.

APPLIED COURSE Comparison of Provincial Results Over Time^{*†}

	2006–2007	2007–2008	2008–2009	2009–2010	2010–2011
	# = 49 056	# = 47 817	# = 48 482	# = 47 566	# = 44 095
Level 4	5%	5%	5%	7%	7%
Level 3	30%	29%	33%	34%	35%
Level 2	36%	36%	35%	35%	35%
Level 1	14%	15%	14%	14%	14%
Below Level 1	7%	8%	7%	6%	5%
No Data	9%	7%	6%	5%	5%
At or Above the Provincial Standard [‡]	35%	34%	38%	40%	42%

- There were 44 095 Grade 9 students enrolled in the applied course at the time of the 2010–2011 assessment.
- The Grade 9 assessment is based on *The Ontario Curriculum, Grades 9 and 10: Mathematics* (revised 2005).

Percentage of All Students at or Above the Provincial Standard (Levels 3 and 4) Over Time



Observations

- Over the past five years, the percentage of students taking applied mathematics who performed at or above the provincial standard has increased by seven percentage points, from 35% to 42%.
- In 2010–2011, there was an increase of two percentage points from the previous year's percentage of students performing at or above the provincial standard in applied mathematics.

* Refer to the EQAO Web site (www.eqao.com) for data from previous years.

† Because percentages in tables and graphs are rounded, and because graphs do not show all reporting categories, percentages may not add up to 100.

‡ These percentages are based on the actual number of students and cannot be calculated simply by adding the rounded percentages of students at Levels 3 and 4.

ACADEMIC COURSE

Tracking Progress in Math from Grade 3 to Grade 6 to Grade 9

The pie chart shows how students who were in the Grade 9 academic math course in 2011 performed compared to their results when they were in Grade 3 in 2005 and Grade 6 in 2008.

The percentages in the chart are based on all students who could be tracked, including those who participated, were exempted or did not provide enough work to be scored. Specifically, of the 99 278 students enrolled in the Grade 9 academic course in 2011, 79 650 (80%) had been in the Ontario school system for the provincial tests in Grade 3 and Grade 6.

The chart below is divided into four slices, which represent the four possible ways these students could have progressed from the Grade 3 to the Grade 6 assessment. The number and percentage of students who met or did not meet the provincial standard in Grade 9 are then given within each slice.

Student Math Progress from Grade 3 to Grade 6 to Grade 9, Academic Math Course

Grade 9 Results

Of the 7330 students who had achieved below the standard in both Grade 3 and Grade 6,

- 49% (3560) met it in Grade 9 and
- 51% (3770) did not meet it in Grade 9.

Grade 9 Results

Of the 7880 students who had dropped from the standard from Grade 3 to Grade 6,

- 64% (5056) met it in Grade 9 and
- 36% (2824) did not meet it in Grade 9.

Grade 9 Results

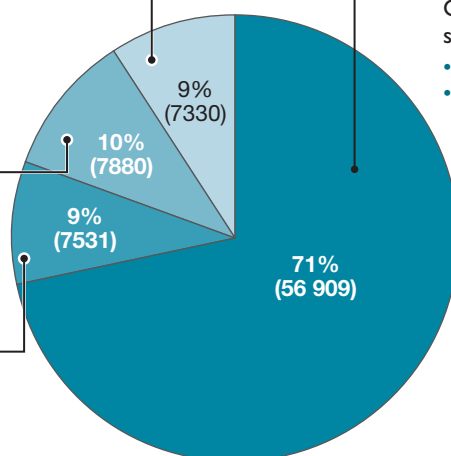
Of the 7531 students who had risen to the standard from Grade 3 to Grade 6,

- 77% (5831) met it again in Grade 9 and
- 23% (1700) did not meet it in Grade 9.

Grade 9 Results

Of the 56 909 students who had met the standard in both Grade 3 and Grade 6,

- 92% (52 311) met it again in Grade 9 and
- 8% (4598) did not meet it in Grade 9.



Progression from Grade 3 to Grade 6

- Maintained Standard (71%)
- Rose to Standard (9%)
- Dropped from Standard (10%)
- Never Achieved Standard (9%)

Key Findings

Students who meet the provincial standard early in their schooling are most likely to maintain their high achievement in secondary school. Of the students who had met the provincial standard in both Grade 3 and Grade 6, 92% met it again in Grade 9 in the academic mathematics course.

Students who do not meet the provincial standard early in their schooling are most likely to continue not meeting the standard in later grades. Of the students who had not met the provincial standard in Grade 3 and also had not in Grade 6, 51% did not meet it in Grade 9 in the academic mathematics course.

Pinpointing the needs of students early and providing support makes a difference. The large majority of students who had not met the standard in Grade 3 but were supported and improved to meet it in Grade 6 carried that success forward into Grade 9. Of the students who had not met the provincial standard in Grade 3 but had met it in Grade 6, 77% met it in Grade 9 in the academic mathematics course.

APPLIED COURSE

Tracking Progress in Math from Grade 3 to Grade 6 to Grade 9

The pie chart shows how students who were in the Grade 9 applied math course in 2011 performed compared to their results when they were in Grade 3 in 2005 and Grade 6 in 2008.

The percentages in the chart are based on all students who could be tracked, including those who participated, were exempted or did not provide enough work to be scored. Specifically, of the 44 095 students enrolled in the Grade 9 applied course in 2011, 30 465 (69%) had been in the Ontario school system for the provincial tests in Grade 3 and Grade 6.

The chart below is divided into four slices, which represent the four possible ways these students could have progressed from the Grade 3 to the Grade 6 assessment. The number and percentage of students who met or did not meet the provincial standard in Grade 9 are then given within each slice.

Student Math Progress from Grade 3 to Grade 6 to Grade 9, Applied Math Course

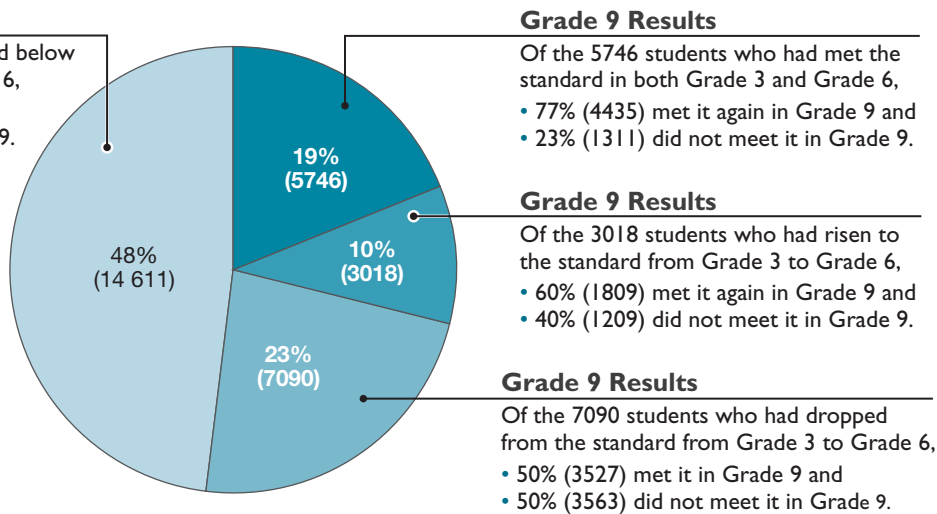
Grade 9 Results

Of the 14 611 students who had achieved below the standard in both Grade 3 and Grade 6,

- 29% (4212) met it in Grade 9 and
- 71% (10 399) did not meet it in Grade 9.

Progression from Grade 3 to Grade 6

- Maintained Standard (19%)
- Rose to Standard (10%)
- Dropped from Standard (23%)
- Never Achieved Standard (48%)



Key Findings

Students who meet the provincial standard early in their schooling are most likely to maintain their high achievement in secondary school. Of the students who had met the provincial standard in both Grade 3 and Grade 6, 77% met it again in Grade 9 in the applied mathematics course.

Students who do not meet the provincial standard early in their schooling are most likely to continue not meeting the standard in later grades. Of the students who had not met the provincial standard in Grade 3 and also had not in Grade 6, 71% did not meet it in Grade 9 in the applied mathematics course.

Pinpointing the needs of students early and providing support makes a difference. The large majority of students who had not met the standard in Grade 3 but were supported and improved to meet it in Grade 6 carried that success forward into Grade 9. Of the students who had not met the provincial standard in Grade 3 but had met it in Grade 6, 60% met it in Grade 9 in the applied mathematics course.

STRATEGIES FOR TEACHERS: GRADE 9

In 2010, EQAO added questions to the Grade 9 student and teacher questionnaires regarding the option for teachers to count the Grade 9 Assessment of Mathematics as part of the student's final course mark. EQAO analyzed the responses to study the impact of the practice on student achievement. One important finding was that a larger percentage of students achieved the provincial standard when they knew the results would be counted as part of their course mark. Key findings and implications for practice were presented in a September 2011 EQAO Memorandum to Secondary School Principals and Secondary Board Contacts. A detailed research bulletin will be posted on EQAO's public Web site in late fall 2011.

The following 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 Grade 9 Assessment of Mathematics, Winter and Spring 2011, for both the academic and applied courses, and on feedback from teachers who scored the assessment.

The released questions can be found in the student assessment booklets and scoring guides (2010–2011) on the EQAO Web site, www.eqao.com.

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.

Observations, Strategies and Resources: Grade 9 Academic

Academic Course	Observations	Strategies for Improvement
Number Sense and Algebra	Responses to the questions in this strand indicate that students have a basic understanding of how to solve equations and simplify expressions. Students were reasonably successful substituting into and rearranging the formula in the open-response question. Scorers noted that some students combined the constant and variable terms when solving.	Continue to provide students with opportunities to practise substituting into, rearranging and solving equations. Continue to provide students with problems that require them to use algebraic skills in a variety of contexts. Model using manipulatives to collect like terms, and allow their use to aid in visualizing abstract concepts. Continue to teach and promote mental math strategies.
Linear Relations	Students were more successful on the multiple-choice than the open-response questions that required them to determine the equation of a linear relation. Scorers of open-response questions noted that some students did not recognize the non-uniform increases of the independent variable in the table. Another common error was treating the relationship as if it were a direct variation. Many students were successful at drawing a line of best fit and determining its slope.	Provide students with opportunities to work with data from linear relations in many representations (tables, graphs, descriptions) for both direct and partial variations. Be sure to include non-uniform increases in the independent variable and different scales on the horizontal and vertical axes of graphs.

Academic Course	Observations	Strategies for Improvement
Analytic Geometry (Academic Only)	Students performed least well on the questions from this strand. Scorers of the open-response question dealing with restrictions on the variables noted that many students stated a specific value but did not identify ranges of values for the variables.	Continue to develop concepts of Analytic Geometry through the concepts of Linear Relations. Provide students with opportunities to identify and explain restrictions on the variables of a linear relation.
Measurement and Geometry	In 2011, students performed best on the questions from this strand. Scorers of the open-response question dealing with unknown measures of angles noted that students made assumptions that lines were parallel without considering the information given in the diagram. Most students performed well on the question about the perimeter of a composite 2-D shape that involved semicircles, although some students continue to confuse area and perimeter.	Require students to write justifications that include geometric properties when determining unknown angle measures. Continue to review timelines to ensure that the expectations from this strand receive an appropriate amount of instructional time.
General Observations on the Mathematics Data	Students continue to be least successful on multiple-choice and open-response questions mapped to the skill Thinking and most successful on questions mapped to the skill Knowledge and Understanding. Students continue to omit important details and make incorrect assumptions when answering all types of mathematics questions.	Provide students with opportunities to solve open-ended problems in many contexts. Reinforce the four-step problem-solving model. Provide opportunities for students to discuss different problem-solving strategies and present different solutions through group strategies such as Bansho and math congress. Continue to teach reading and writing strategies and how to use graphic organizers to help students organize the information in problems and solve them. Provide students with samples of student work at various levels of performance.
Students with Special Education Needs (Excluding Gifted)	Students with special education needs continue to perform less well than the general population and less well than English language learners.	Continue to differentiate instruction using the Universal Design for Learning for all students, but particularly for students with special education needs. Review the allowed accommodations listed in EQAO's <i>Grade 9 Assessment of Mathematics Guide for Accommodations and Special Provisions, 2011</i>, and assign them to students on an individual basis. Provide each student with these same accommodations throughout the course.

Academic Course	Observations	Strategies for Improvement
English Language Learners	English language learners performed well on the open-response question dealing with angles. English language learners were slightly more successful than the general population on the questions mapped to the skill Knowledge and Understanding.	Continue to provide opportunities for interactive problem solving and discussions of different ways to solve problems (e.g., through Bansho) to all students, but particularly to English language learners. Reinforce mathematical terminology throughout the mathematics curriculum and require students to use the terminology.
Gender	Overall, male students were slightly more successful than female students in all strands, skills and types of questions.	Provide collaborative learning opportunities using strategies that require all group members to have a voice, such as think-pair-share.

Observations, Strategies and Resources: Grade 9 Applied

Applied Course	Observations	Strategies for Improvement
Number Sense and Algebra	Students performed well on the multiple-choice questions involving simple ratios and unit rates. Students continue to struggle with questions requiring the simplification of algebraic expressions. Most students were successful with the open-response question requiring the substitution and the evaluation of formulas. Scorers noted that the students who were successful often showed many steps in their process.	Continue to provide students with manipulatives and instruction on how to use them to help them visualize and gain a conceptual understanding of abstract algebra concepts. Provide students with multiple opportunities to use algebra in all strands (e.g., solving for the unknown in problems involving angles or area). Require students to write solutions that show the steps of their process. Continue to teach and promote mental math strategies.
Linear Relations	Students were successful on the questions that involved graphing a linear relation from a description or a table of values. Judging by the wrong answer choices and the frequency with which they were chosen, many students overlooked important information when answering multiple-choice questions. Students struggled with the open-response question requiring them to write a story to explain a graph. Scorers of the open-response question noted that students who were unsuccessful focused on only one of distance, speed and time for all of the segments of the graph.	In graphing, continue to model the creation of appropriate scales that accommodate the given data. Be sure to use examples that have many-to-one and many-to-many correspondences. Provide students with opportunities to make connections between different representations of linear relations (e.g., graphs, tables of values, equations and descriptions), and use these connections to write equations equivalent to the other representations. Continue to provide opportunities for students to describe situations illustrated by graphs. Include variations in scales, starting points and contexts.

Applied Course	Observations	Strategies for Improvement
Measurement And Geometry	Students performed least well on the questions from this strand. Students struggled with questions involving the Pythagorean theorem, both when they were directed to use it and when they were required to choose it. Students were reasonably successful on the open-response question involving area and cost. Scorers noted that some students attempted to apply the Pythagorean theorem when it was not required. Students were more successful on the question that required them to find an angle measure when there was only one than when there were more than one.	Continue to relate the geometric representation of the Pythagorean theorem to the algebraic representation through visuals. Model when to apply the theorem in problems and when not to. Model how to make a plan to solve for unknown angle measures in problems with more than one. Require students to write justifications that include geometric properties when determining unknown angle measures.
General Observations on the Mathematics Data	Students were least successful on multiple-choice and open-response questions mapped to the skill Knowledge and Understanding and most successful on questions mapped to the skill Application. Students continue to miss important details and make incorrect assumptions when answering all types of mathematics questions.	Reinforce the four-step problem-solving model. Provide opportunities for students to discuss different problem-solving strategies and present different solutions through group strategies such as Bansho and math congress. Continue to teach reading and writing strategies and how to use graphic organizers to help students organize the information in problems and solve them. Provide students with samples of student work at various levels of performance.
Students with Special Education Needs (Excluding Gifted)	Students with special education needs continue to perform less well than the general population. Students with special education needs continue to exhibit the same pattern of relative strengths and weaknesses as the general population. Students with special education needs were more successful on the open-response questions than English language learners.	Continue to differentiate instruction using the Universal Design for Learning for all students, but particularly for students with special education needs. Review the allowed accommodations listed in EQAO's <i>Grade 9 Assessment of Mathematics Guide for Accommodations and Special Provisions, 2011</i>, and assign them to students on an individual basis. Provide each student with these same accommodations throughout the course.
English Language Learners	Overall, English language learners performed less well than students with special education needs. However, English language learners were more successful on the multiple-choice questions. Overall, English language learners exhibited the same pattern of relative strengths and weaknesses as did the general population.	Continue to provide opportunities for interactive problem solving and discussions of different ways to solve problems (e.g., through Bansho) to all students, but particularly to English language learners. Reinforce mathematical terminology throughout the mathematics curriculum and require students to use the terminology.
Gender	Overall, male students were slightly more successful than female students on multiple-choice and open-response questions on all strands and skills.	Provide collaborative learning opportunities using strategies that require all group members to have a voice, such as think-pair-share.

Academic and Applied Courses

List of Resources

If you are reading the version of this document found on the EQAO Web site, www.eqao.com, please use the hyperlinks to the listed resources.

Bansho and math congress

- Ministry of Education of Ontario. (n.d.). Bansho and math congress. In *What's important to do and to know about Bansho?* Available at http://www.edugains.ca/resources/EffectiveQuestioning/MathCAMPPP2010/CAMPPP_K-2/Day_4/3%20High%20Yield%20Strategies%20in%20Math.pdf

Conceptual understanding

- Ministry of Education of Ontario. (2005). The link between procedural knowledge and conceptual understanding (p. 74). In *Education for all: The report of the expert panel on literacy and numeracy instruction for students with special education needs, kindergarten to Grade 6*. A brief discussion of the link between procedural knowledge and conceptual understanding, available at <http://www.edu.gov.on.ca/eng/document/reports/speced/panel/speced.pdf>

Differentiated instruction

- Ministry of Education of Ontario. (2005). Differentiated instruction. In *Targeted implementation and planning supports for revised mathematics (TIPS4RM), Grades 7, 8, 9 applied and 10 applied: Developing mathematical literacy* (pp. 23, 36–147). Outlines of differentiation based on various student and learning factors, available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/files/tips4rm/TIPS4RMDevMathLit.pdf>
- Ministry of Education of Ontario. (n.d.). *Professional learning guide: Differentiated instruction*. Description of what differentiated instruction means in the classroom and considerations relating to its implementation, available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/differentiatedInstruction.pdf>
- Ministry of Education of Ontario. (2005). Differentiated instruction. In *Education for all: The report of the expert panel on literacy and numeracy instruction for students with special education needs, kindergarten to Grade 6* (pp. 14–15). An overview, available at <http://www.edu.gov.on.ca/eng/document/reports/speced/panel/speced.pdf>
- Literacy and Numeracy Secretariat (Producer). (2006, March 29). *Differentiated instruction: Continuing the Conversation* [Webcast]. Available at <http://www.curriculum.org/secretariat/march29.shtml>
- Literacy and Numeracy Secretariat (Producer). (2008, May 26). *Differentiating Mathematics Instruction* [Webcast]. Available at <http://www.curriculum.org/secretariat/may28.shtml>

English language learners

- Ministry of Education of Ontario. (2005). In *TIPS for English language learners in mathematics, Grades 7, 8, 9 applied and 10 applied: Developing mathematical literacy for all*. Support for teachers of English language learners in Grade 9 applied courses, available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/files/ELLMath4All.pdf>
- Ministry of Education of Ontario. (2005). *Many roots, many voices: Supporting English language learners in every classroom: A practical guide for Ontario educators*. Insights on ways to assist English language learners, available at <http://www.edu.gov.on.ca/eng/document/manyroots/manyroots.pdf>
- EQAO's sample assessment questions, which include scoring guides, item-specific rubrics and sample student responses. Available at <http://www.eqao.com/Educators/Secondary/09/BookletsandGuides.aspx?Lang=E&gr=09&yr=11>

Four-step problem-solving model

- Ministry of Education of Ontario. (2005). *The Ontario Curriculum, Grades 1–8: Mathematics*. Available at <http://www.edu.gov.on.ca/eng/curriculum/elementary/math18curr.pdf>

Graphic organizers

- Ministry of Education of Ontario. (2005). Graphic organizers. In *Targeted implementation and planning supports for revised mathematics (TIPS4RM), Grades 7, 8, 9 applied and 10 applied: Developing mathematical literacy* (p. 25). An overview, available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/files/tips4rm/TIPS4RMDevMathLit.pdf>
- Ministry of Education of Ontario. (n.d.). *Professional learning guide: Graphic organizers*. Available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/graphicOrganizers.pdf>
- Ministry of Education of Ontario. (2004). *Think literacy: Cross-Curricular Approaches, Grades 7–12: Mathematics, Grades 7–9*. Examples of graphic organizers, available at <http://www.edu.gov.on.ca/eng/studentsuccess/thinkliteration/files/ThinkLitMath.pdf>

Academic and Applied Courses

List of Resources

Manipulatives (concrete materials)

- Ministry of Education of Ontario. (n.d.). *Professional learning guide: Manipulatives*, available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/manipulatives.pdf>
- Ministry of Education of Ontario. (2005). Concrete materials. In *Targeted implementation and planning supports for revised mathematics (TIPS4RM)*, Grades 7, 8, 9 applied and 10 applied: Developing mathematical literacy (p. 22). Available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/files/tips4rm/TIPS4RMDevMathLit.pdf>
- Ministry of Education of Ontario. (2004). Making available and using a rich array of manipulatives. Embedding manipulatives into instructional practice. In *Leading math success: Mathematical literacy, Grades 7–12: The report of the expert panel on student success in Ontario* (pp. 48–50 and 58). A list of essential manipulatives, available at <http://www.edu.gov.on.ca/eng/document/reports/numeracy/numeracyreport.pdf>
- Ministry of Education of Ontario. (n.d.). *Manipulatives and technologies: Their role in teaching and learning mathematics* [Slide presentation]. Examples of the use of manipulatives, available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/library.html#family>

Modelling

- Ministry of Education of Ontario. (2005). Modelling. In *Education for all: The report of the expert panel on literacy and numeracy instruction for students with special education needs, kindergarten to Grade 6* (pp. 63–64). Suggestions on modelling, available at <http://www.edu.gov.on.ca/eng/document/reports/speced/panel/speced.pdf>

Problem-solving strategies

- Ministry of Education of Ontario. (2005). Problem solving. *Targeted implementation and planning supports for revised mathematics (TIPS4RM)*, mathematical processes (p. 2). Available at <http://www.edu.gov.on.ca/eng/studentsuccess/lms/files/tips4rm/TIPS4RMProcesses.pdf>
- Ministry of Education of Ontario. (2006). Problem-solving strategies. In *A guide to effective instruction in mathematics, kindergarten to Grade 6: Volume 2: Problem solving and communication* (pp. 38–44). Available at http://www.eworkshop.on.ca/edu/resources/guides/Guide_Math_K_6_Volume_2.pdf

Reading and writing strategies

- Ministry of Education of Ontario. (2004). *Think literacy: Cross-Curricular Approaches, Grades 7–12: Mathematics, Grades 7–9*. Available at <http://www.edu.gov.on.ca/eng/studentsuccess/thinkliteracy/files/ThinkLitMath.pdf>

Samples of student work

- Ministry of Education of Ontario. (2000). *The Ontario curriculum exemplars, Grade 9: Mathematics*. Available at <http://www.edu.gov.on.ca/eng/curriculum/secondary/math9ex/>

Students with special education needs

- Literacy and Numeracy Secretariat. (2008, May 2). *High-yield strategies to improve student learning* [Webcast]. See the numeracy segments, available at <http://www.curriculum.org/secretariat/may2.shtml>
- Ministry of Education of Ontario. (2005). *Education for all: The report of the expert panel on literacy and numeracy instruction for students with special education needs, kindergarten to Grade 6*. Available at <http://www.edu.gov.on.ca/eng/document/reports/speced/panel/speced.pdf>

Think-pair-share

- Ministry of Education of Ontario. (2004). Pair work: Think/pair/share. In *Think literacy: Cross-Curricular Approaches, Grades 7–12: Mathematics, Grades 7–9* (pp. 96–98). Available at <http://www.edu.gov.on.ca/eng/studentsuccess/thinkliteracy/files/ThinkLitMath.pdf>

Universal Design for Learning

- Ministry of Education of Ontario. (2005). Universal design for learning (UDL). In *Education for all: The report of the expert panel on literacy and numeracy instruction for students with special education needs, kindergarten to Grade 6* (pp. 10–13). Available at <http://www.edu.gov.on.ca/eng/document/reports/speced/panel/speced.pdf>

**Education Quality and
Accountability Office**



2 Carlton Street, Suite 1200, Toronto ON M5B 2M9

Telephone: 1-888-327-7377 Web site: www.eqao.com

© 2011 Queen's Printer for Ontario