



Memorandum To: Directors of Education
Secretary/Treasurers of School Authorities

From: George Zegarac
Deputy Minister

Date: April 8, 2016

Subject: Ontario's Renewed Mathematics Strategy

Building on the renewed goals in *Achieving Excellence: A Renewed Vision for Education in Ontario*, the Ministry of Education is committed to helping students gain the mathematics knowledge and skills they will need for the future. Increasing mathematics achievement across the province will continue to be a key priority for the ministry, which will be supported through more than \$60 million in dedicated funding.

The Renewed Mathematics Strategy is an Early Years to Grade 12 strategy that leverages the collective knowledge and skills from our shared successes of the past to focus on improving student achievement in mathematics. The strategy will provide new forms of support to all schools, increased support to some schools, and intensive support to a select group of schools with the greatest needs in mathematics. Support will also include a focus on the strengths and needs of students with learning disabilities. In secondary schools, support will centre on students taking compulsory courses in Applied Mathematics.

The Renewed Mathematics Strategy takes the latest research along with what we have learned from our successful journey to improve literacy achievement among elementary students and pass rates among secondary students, and applies that knowledge to support better outcomes in mathematics.

Support for schools will focus on professional learning opportunities connected to student learning and well-being that leverage the big and/or highly effective ideas from key foundational mathematical documents and resources that will support teachers in planning for a balanced approach to learning and teaching that will allow students to learn with understanding, develop proficiency, learn mathematical ways of thinking and an appreciation for how mathematics is used in everyday life. It will also draw upon what we know about culturally responsive pedagogy in order to support all learners including French-language students and First Nation, Métis and Inuit students. More, precise instructional strategies will be emphasized for children in care and students with special education needs.

In addition to the projected district school board (DSB) Education Programs – Other (EPO) funding amounts for 2016-17 (see Memorandum 2016: B07), this memo will provide details on the following:

- A continued focus on mathematics in Ontario schools
- Key elements of the strategy and how they will be supported
- Next steps in the implementation of the strategy

A continued focus on mathematics in Ontario schools

Today's economy is supported by an increasingly complex set of skills and knowledge. Predictable, routine tasks of today will become automated and the non-routine unpredictable tasks will increasingly become the jobs of the future. As such, mathematical skills and knowledge are increasingly becoming critical components of success.

The goal in Ontario is that 75 per cent of all elementary students achieve a level 3 or higher on provincial assessments in reading, writing and mathematics. To meet this, the ministry is committed to continuing to work with teachers, principals, supervisory officers, directors of education and their professional associations to identify and share effective and innovative learning, teaching and leading practices.

While student achievement in mathematics in Ontario is quite good compared to other jurisdictions, we know that we have more to do. We also recognize the positive achievement of students in French-language schools – however, we know that there is still more progress to be made in Grade 9 Applied Mathematics for both French and English language students. In secondary schools, our goal is to increase the percentage of students achieving the provincial standard in the Grade 9 applied mathematics provincial assessment. Over the past five years, results from provincial Education Quality and Accountability Office (EQAO), international and classroom-based assessments have helped identify the learning strengths and needs of our students in specific subjects and provided valuable data to inform school and board improvement plans.

We know that having basic skills is important. When students do not know or cannot recall their multiplication facts, for example, it is tougher for them to be efficient with higher level skills such as algebra. We also know that when students learn skills in isolation, they will not necessarily know how to apply them in the real world.

The Ontario mathematics curriculum has been designed to help students build a solid conceptual foundation that will enable them to apply their knowledge and further their learning successfully. It advocates for a balanced approach between building understanding and developing skills, which includes problem solving, direct instruction, investigation, assessment and practice. From our review, the curriculum compares favourably with other high-performing jurisdictions. We will be working with our partners going forward, as well as looking at the latest research on mathematics education to review whether adjustments to the mathematics curriculum and supporting resources are needed.

It is in this context that the Renewed Mathematics Strategy calls on all of us to leverage our collective knowledge and skills from shared past successes to focus on improving student achievement in math.

Key elements of the strategy and how they will be supported (see Appendix II for DSB-level funding)

The strategy rests on an implementation model of differentiated and responsive support and capacity building for all Ontario schools, Early Years to Grade 12, in addition to providing increased support to some schools and intensive support to a select group of schools that have students with the greatest needs in mathematics.

EQAO results in Grades 3, 6 and 9 Mathematics, including data from student, teacher and principal questionnaires, are a key source of information for how the strategy was developed and contributed to the funding model, outlined in Appendix I. A detailed list of schools requiring increased and intensive support in your DSB, where applicable, will be forwarded to you separately.

An important part of the strategy is that while the funding model rests on certain assumptions about how implementation will occur, DSBs will have some flexibility in configuring these supports, with the support of the ministry, to fit with the unique context of their schools and existing implementation resources and capacity. This flexibility may be particularly pertinent in circumstances that may be unique to a school, DSB or board type. For example, in schools for which there is a shortage of occasional teachers or DSBs with several very small schools.

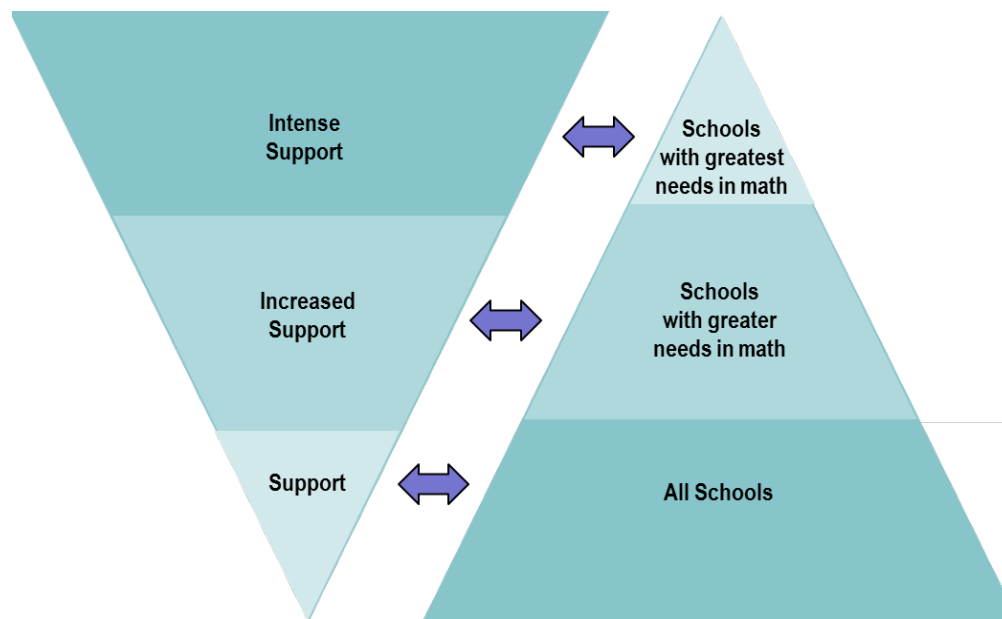


Figure 1: A targeted approach to support schools with different student achievement and professional learning needs

Building upon whole-school and whole-department approaches to improvement in elementary and secondary schools respectively, support for schools will focus on providing release time for teams of educators to engage and network in professional learning and capacity building opportunities. While it is acknowledged that most professional learning is classroom embedded, time outside of the classroom is also necessary to examine student work as a group, consider teaching strategies, examine the needs of the whole child, assess their impact on student learning and document the results. Collaboration creates a mindset that will develop an enabling environment. A learning stance among all staff, students and parents is foundational to this environment.

Release time to support a whole-school approach in elementary schools involves:

- Base funding for all elementary schools to support learning, teaching and leading in mathematics through 5 to 10 release days, depending upon school size (\$6.5M).
- Establishing up to three elementary school mathematics lead teachers in every elementary school. The math lead teacher will be a current educator in a school whose responsibility is to deepen their mathematics knowledge through professional learning that involves studying students' mathematics learning with other teachers, to apply this learning to their professional practice, and to share their learning with other educators in their school as appropriate in professional practice. This will be supported through five release days for each lead teacher (\$7.7M).
- Funding for release time for every elementary school principal to engage in whole-school collaborative professional learning for four days (\$5.5M).
- The foregoing supports increase for some elementary schools (\$1M) and are more intensive for a few schools with the greatest needs in mathematics (\$1.3M).

Release time supports for a whole-department approach in secondary schools involves:

- All secondary schools will receive funding towards their ongoing work to support math learners' transition from grade-to-grade (6 to 7, 7 to 8 and 8 to 9) and from school-to-school (\$1.7M). Students who are not yet achieving at the provincial standard in math will be the focus of this work.
- Selected schools with lower achievement in Grade 9 Applied Mathematics will receive additional funding to release teachers to collaborate on the effective assessment and analysis of student work, plan instruction in response to students' strengths and needs, and consolidate cross-curricular mathematics strategies (\$4.4M).

- For schools with the greatest achievement challenges that will receive intensive support, additional release time funding will be provided to support lead mathematics teachers, such as department heads, to build capacity in schools and work collaboratively with their school teams (\$3.2M).

Focused support, both in terms of funding (\$1.5M) and professional learning, will be provided to strengthen mathematics learning, teaching and leading across Ontario for students with special education needs, particularly for students with learning disabilities. This will be an explicit focus in elementary and secondary schools receiving the most intensive supports. Deliberate attention to students with learning disabilities will build upon the process outlined in *Learning for All, K-12 (2013)*:

- developing class and student profiles based on knowing your students and students knowing themselves as learners through an asset lens and with a growth mindset;
- implementing responsive, personalized and precise assessment and instructional practices informed by evidence of student learning; and
- exploring and leveraging the role of assistive technology as accommodation and learning tools for all students.

The aim is to have increased educator capacity in making more effective accommodations and fewer modifications for students with learning disabilities, consistent with *PPM 8: Identification of and Program Planning for Students with Learning Disabilities*. This responsive approach to individual student learning strengths and needs will benefit all students with special education needs, that is, *necessary for some and good for all*.

In addition to ministry support for release time, DSBs will receive funding for activities such as:

- Funding for an elementary school-based mathematics facilitator (0.3 to 0.5 FTE allocations) with a particular focus on studying/assessing student learning in the few schools with the greatest needs in mathematics (\$11.1M). DSBs will have the flexibility in staffing for this position based on their particular needs and existing capacity (e.g., assessment specialist, special education specialist, mathematics specialist, leadership coaching).
- Funding for a DSB-based professional learning mathematics facilitator where board size and school performance warrant this support (\$2.3M).
- Continued funding for French-language DSB mathematics facilitators (\$1.2M).
- Funding for DSB-based supports to provide targeted support in DSBs where pass rates in Grades 9 and 10 applied math compulsory courses are below the provincial average (\$2.1M).
- Funding to support K to 12 regional networking (\$1.8M).
- Summer Learning Programs for students K to 6, which is administered each year by the Council of Directors of Education (\$9M).

- Pedagogical leadership (PLK-3) sessions for Early Years school board leadership teams targeting implementation of the Kindergarten Program document, *Growing Success: The Kindergarten Addendum* and the Communication of Learning (\$360,000). Release time would also provide opportunities for teachers and Early Childhood Educators (ECEs) to work as a team to plan, implement, monitor and assess mathematics learning in our Kindergarten classrooms.

The ministry will work with its partners in establishing the criteria and practices around the selection of mathematics lead teachers and school-based facilitators.

The optimum amount of time for mathematics learning and teaching is four to six hours per week. Therefore, starting in September, we will **protect a minimum of 60 minutes each day** for teachers to be able to focus on instruction in mathematics. Additionally, schools should continue to explicitly embed mathematics across the curriculum. To support this, the ministry will work with education partners to develop a resource that articulates what *effective learning, instruction and assessment in mathematics, K-12* looks like over the course of 60 minutes and over the course of 300 minutes a week, based on research and current effective practices from the field. Models and examples across the curriculum strands and divisions will be included. The ministry will consult with education partners about the development of a PPM to affect this change and how to support this implementation.

District School Boards are also required to focus one of the designated **Professional Activity (PA) days devoted to provincial education priorities on mathematics/ numeracy**. This dedicated time for professional learning in mathematics leverages the benefits of a whole-child and whole-school approach to improvement and should be planned as a coherent component of school- and system-wide capacity building.

In addition, our ministry is urging district school boards to **staff Grade 7/8 mathematics courses and Grade 9 Applied mathematics courses with a qualified mathematics teacher** and/or commit to providing support if a teacher who is not qualified in mathematics is assigned to teach the course. We are committed to working with our partners in support of this goal.

Early years programs will receive support for planning, implementing and monitoring mathematics into the play-based environment based on research and including models/samples across learning domains.

Finally, there will be a modest adjustment of the funding allocation in fall 2016 in response to the school-level EQAO results usually received in August. Many school boards will be familiar with this practice from their experience with the Ontario Focused Intervention Program (OFIP) and System Implementation and Monitoring funding in the past. It should also be noted that OFIP will continue to be funded and implemented as in prior years. OFIP schools will also have the opportunity to apply for additional funding to support their school improvement efforts through parent engagement (details to follow).

EPO funding that goes directly to DSBs is not the only form of support that DSBs are able to access as part of renewing a focus on mathematics. In fact, DSBs will want to consider carefully how the following opportunities can strengthen their overall math improvement plan and as a result lead to greater student success.

- Summer credit-bearing reach ahead opportunities for students transitioning from Grade 8 to Grade 9, with a particular focus on students who were not successful at meeting the provincial standard in math as measured by the Grade 6 EQAO assessment.
- Summer institute courses for educators and principals to prepare for leading a whole-school/whole-department approach to improvement in mathematics, including an intentional focus on early years for elementary schools.
- Newly designed subsidies to support participation in Mathematics Additional Qualifications (AQ) courses as a school-based team, including principals (details to follow).
- Principal coaching, mentoring and networking opportunities to support a whole-school approach to improving mathematics learning, teaching and leading provided, in part, by Ontario principals' associations and Leading Student Achievement, and consistent with a Leadership for Learning approach.
- Supporting technology-enabled learning to deepen students' understanding of key mathematics concepts and to build procedural fluency.
- Fostering school-family partnerships and meaningful parent involvement in support of their children's math learning.
- Tutoring opportunities such as Tutors in the Classroom, and Literacy and Numeracy Outside the School Day.
- Homework Help (or SOD Devoirs) will be made available during the school day early in the semester so students can gain familiarity with it in the classroom. Research suggests that if teachers choose to guide students in the use of these resources early in the school year, the students make good use of it and it contributes to their learning.

Bringing together all these elements, while at the same time linking them to student learning needs, will require a coordinated effort to create optimal conditions for learning. The Ministry currently provides funding for important leadership positions in boards – School Effectiveness Leads, Early Years Leads and Student Success Leaders – whose knowledge, skills and relationships will play a central role in the implementation of this strategy.

Student Well-Being

Educators play an important role in promoting children and youth's well-being by creating, fostering and sustaining a learning environment that is healthy, caring, safe, inclusive and accepting. A learning environment of this kind will support not only learners' cognitive, emotional, social and physical development, but also their mental health, resilience, and overall state of well-being. All this will help them to achieve their full potential in school and in life.

Through the Renewed Mathematics Strategy, we will focus on learner development – looking at elements such as processing and reasoning skills, use of various strategies for learning, positive attitudes towards and self-efficacy in mathematics. These are essential elements as part of the cognitive and social development of our learners.

Research, Monitoring and Evaluation

Research, monitoring and evaluation have played an important role throughout the 12-year history of system-wide improvement in education in Ontario. These activities will continue to play an important role as we increase our collective capacity to use evidence to inform decisions and implementation. We hope that we can continue to count on your assistance in carrying them out, knowing that the knowledge and insights gained will be used to create even better conditions for learning and to enable all learners to develop their mathematics knowledge, skills and reasoning abilities.

Next steps in the implementation of the Renewed Mathematics Strategy

Over the coming weeks and months, we will engage in conversations with you, your DSB team and all of our partners as we work together to plan the implementation of the strategy. We recognize that there are no simple paths to success. The work to improve student achievement in mathematics is complex, important and continues to evolve.

The Renewed Math Strategy aims to create coherence by reducing the number of discrete ministry initiatives. How DSBs and schools want to access and involve ministry personnel and resources, especially in respect to planning, capacity building and monitoring, is a distinct feature of the strategy that will evolve in collaboration and partnership.

Both the DSB and school improvement plans will help articulate the ways in which DSBs and schools are implementing actions to achieve their math goals, as well as strategies for gathering evidence of impact. As part of the board and school improvement processes, a focused math improvement plan – either stand alone or within the board improvement plan – with a small number of high impact goals based on student learning needs, will be an important part of DSB-ministry conversations that occur throughout the year. Additionally, all schools that are attracting the most intensive support through the Renewed Mathematics Strategy will develop their school improvement plan, including an explicit mathematics improvement plan, which must be shared with the ministry for review and discussion.

As well, a Transfer Payment Agreement (TPA) will be developed with your DSB for the funding you will be receiving under the Renewed Math Strategy. The mathematics plan included in or complementing your DSB's board and school improvement plans will be referenced in the TPA as a description of the work to be done with the funding. The outcome measures described in the plan will form part of the deliverables contained in the TPA.

We are pleased to note that the TPA referred to here replaces no less than 12 former EPO funding sources (as referenced in the B-memo, *2016-17 School Year Education Programs – Other (EPO) Funding* sent on March 24, 2016) and represents a significant shift in ministry funding practice and programmatic alignment.

Please do not hesitate to ask questions and engage with ministry staff, especially those serving your board in the field, as you consider the contents of this memorandum and begin to plan for the 2016-17 school year.

Further information on ministry resources and initiatives in mathematics is accessible through the following links:

- [Ontario's Renewed Math Strategy](#)
- [Doing Mathematics with your Child, Kindergarten to Grade 6: A Parent Guide](#)
- [Homework Help: free online math tutoring](#)
- [Resources for parents and students](#)

If you have any questions or require further information, please contact Richard Franz at Richard.Franz@ontario.ca or 416-325-9963.

We look forward to working with you in supporting increased mathematics learning.

Enclosure



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Deputy Minister

c: *Council of Ontario Directors of Education*