



ALGONQUIN AND LAKESHORE CATHOLIC DISTRICT SCHOOL BOARD

ADMINISTRATIVE PROCEDURES

NUMERACY FRAMEWORK FOR INTERMEDIATE DIVISION (GRADES 7 – 10)

Purpose

The purpose of the Algonquin and Lakeshore Catholic District School Board's Numeracy Framework for the Intermediate Division is to ensure that students in Grade 7-10 receive the strategic instruction and support needed to demonstrate confidence and competence in Mathematical Literacy.

References

- Expert Panel Report, Leading Math Success: Mathematical Literacy 7-12, 2004*
- Hill, P., Crevola, C., *The Role of Standards in Educational Reform for the 21st Century* (article)
- Consortium of Ontario School Boards. *Targeted Implementation and Planning Supports: Grades 7, 8, and 9 Applied Mathematics (TIPS)*. 2003
- Consortium of Ontario School Boards. *Leading Math Success. Notable Strategies: Closing the Gap*. 2004
- Consortium of Ontario School Boards. *Targeted Implementation and Planning Supports for Revised Mathematics (TIPS4RM)*. 2005
- Ontario Ministry of Education and Training. *The Ontario Curriculum, Grades 1–8: Mathematics (Revised)* Toronto: Author. 2005
- Ontario Ministry of Education and Training. *The Ontario Curriculum, Grades 9 and 10: Mathematics (Revised)* Toronto: Author. 2005.
- Program Pathways for Students at Risk Work Group. *Building pathways to success, Grades 7–12: The report of the Program Pathways for Students at Risk Work Group*. Toronto: Ontario Ministry of Education. 2003
- Think literacy: Cross-curricular approaches, Grades 7–12*. Toronto: Queen's Printer for Ontario. 2003
- Think literacy: Cross-curricular approaches, Subject-Specific Resources, Mathematics, Grades 7–12*. Toronto: Queen's Printer for Ontario. 2004

Procedures

The Mathematical Literacy Framework

The framework is aimed at making Mathematical literacy a central focus of the Algonquin and Lakeshore Catholic District School Board's learning culture and is the key element for placing students first and bringing about excellence for all. Beliefs and understandings about teaching and learning occupy the central position in the framework design, which is organized around the eight elements of the current research of Carmel Crevola and Peter Hill. The eight elements include:

- Standards and Targets
- Monitoring and Assessment
- Interventions and Special Assistance
- School and Class Organization
- Classroom and Teaching Programs
- Professional Learning Teams
- Home, School and Community Partnerships
- Leadership and Co-ordination

Beliefs and Understandings

The framework is based on the belief that:

- The majority of students can learn, given sufficient time and support.
- Expectations must be high for all students.
- Teaching practices must be focused on the learning needs of all students.

Standards and Targets

Standards and associated targets provide a starting point for refocusing the missions of schools and redesigning how the schools operate in order to meet the standards that have been established and outlined in the curriculum documents. Content standards define the “what” and “when” of the program, and performance standards attempt to define to what level students will progress and by what grade. Teachers should have a clear understanding of all standards to ensure consistent programming, assessment and target setting.

The target setting process engages Algonquin and Lakeshore Catholic District School Board schools in gathering and evaluating data about student learning generated at the classroom level, as well as through the province-wide assessments administered by the Education Quality and Accountability Office (EQAO). Improvement targets are described in relation to the provincial standard (level 3 and 4) for student achievement. There should be an alignment of schools and system standards and targets.

It is expected that:

- By 2008, 75% of the Algonquin and Lakeshore Catholic District School Board Grade 9 Academic and Applied students will be performing at or above the provincial standard (level 3 or 4) on the EQAO assessments of Mathematics.
- By March, 2006, each secondary school will develop school based targets using the EQAO Grade 9 Math results and establish one SMART goal (Specific-Measurable-Attainable-Results Oriented-Time Bound) in Mathematics for Grade 9 Applied.
 - by June 2006, ____% of Grade 9 Applied students will have achieved level 3 or 4
 - by June 2007, ____% of Grade 9 Applied students will have achieved level 3 or 4
 - by June 2008, ____% of Grade 9 Applied students will have achieved level 3 or 4

- By March, 2006, each secondary school will develop school based targets using the EQAO Grade 9 Math results and establish one SMART goal (Specific-Measurable-Attainable-Results Oriented-Time Bound) in Mathematics for Grade 9 Academic.
 - by June 2006, ____% of Grade 9 Academic students will have achieved level 3 or 4
 - by June 2007, ____% of Grade 9 Academic students will have achieved level 3 or 4
 - by June 2008, ____% of Grade 9 Academic students will have achieved level 3 or 4
- By March, 2006, each school will develop school based, grade-specific targets using report card data and establish one SMART goal (Specific-Measurable-Attainable-Results Oriented-Time Bound) in Mathematics for Grades 7-10.
 - by June 2006, ____% of Grade __ students will have achieved level 3 or 4
 - by June 2007, ____% of Grade __ students will have achieved level 3 or 4
- By June, 2008, schools will report that at least 75% of students enrolled in Mathematics in Grade 7-10 courses will have achieved Level 3 or 4.

Monitoring and Assessment

Through professional development and capacity building experiences, teachers recognize that different assessments generate a variety of student information. Teachers assess for learning using diagnostic and formative assessment and evaluate student achievement using summative instruments.

Teachers use information about student achievement (*i.e.*, report card grades, EQAO testing) to guide instruction and improve student learning in numeracy. Schools collect, manage and analyze their students' data and the system identifies and provides assessments for accumulating data on student achievement.

It is expected that:

- Teachers will include components of EQAO Grade 9 assessment for report card marks.
- Teachers will use Ministry of Education prepared exemplars to evaluate student achievement of curriculum expectations.
- EQAO Provincial Assessments will be administered to all Grade 9 students (January/June) enrolled in Applied and Academic mathematics courses.
- Teachers' instructional practices and assessment, evaluation, and reporting of student achievement will follow a balanced approach with respect to the four categories of learning - Knowledge and Understanding, Thinking, Communication, and Application.
- Teachers will use diagnostic assessment (*i.e.*, CAT 3, PRIME) to identify and track students struggling with acquisition of Mathematical Literacy.

Intervention and Special Assistance

Research indicates that early intervention is crucial to ensure further success in Mathematical Literacy. Therefore, schools must ensure that intermediate students who require intervention have access to timely, appropriate programs.

It is expected that:

- Targeted intervention for Grade 7-10 students (e.g., team teaching, liaison with SERTs) will occur in addition to highly effective instruction in the classroom.
- Additional support for Grade 7-10 students with weak Mathematical skills should be available outside of the classroom (e.g., peer tutoring, after-school Numeracy programs).

School and Classroom Organization

School and classroom organization must be based on the learning needs of all students. Therefore, allocation of time, staff and resources must be organized to maximize teaching and student learning. Students' time on task is essential during uninterrupted blocks of numeracy related activities. Classroom routines and organization are important, as numeracy activities require large and small group teaching areas, learning activity areas, a classroom library of mathematical resources, examples of student problem solving and communication and storage for resources and manipulative materials. Classroom walls should display teaching tools to support learning as well as student work such as level 3 or 4 examples of student works.

It is expected that:

- An uninterrupted one-hour block is allocated daily, specifically for Mathematical Literacy in Grade 7-8.
- Each Grade 7-10 classroom will have teaching and learning materials to support Mathematical Literacy instruction through problem solving (e.g., overhead projector, manipulatives, a rich array of technologies, access to computers, graphing calculators).
- Each Grade 7-10 classroom will have learning materials which invite students to explore and represent abstract Mathematical ideas in varied, concrete, tactile, and visually rich ways.

Classroom Teaching Program

In Grade 7-10 classrooms, the balanced numeracy program is highly structured and designed to meet the learning needs of all students. The components of balanced numeracy are taught in an interrelated approach during the daily, uninterrupted Numeracy block.

It is expected that:

- Grade 7-10 students will be engaged in components of a balanced numeracy program – shared mathematics, guided mathematics and independent mathematics which focuses on real-world applications, problem solving, modeling and balanced instructional strategies, including the use of manipulatives to attend to all learning styles.
- All teachers of mathematics and administrators working with students in Grade 7 – 10 courses – including special education teachers – will use the TIPS resource materials.
- Teachers will develop assessment tasks that allow students to demonstrate what they know and can do in different ways.
- Teachers will assess when students have not demonstrated achievement of overall expectations, and will differentiate instruction to provide another opportunity for struggling students, while other students work on extensions.
- Teachers will provide engaging supports that will encourage understanding (e.g., concrete examples, real-world connections, or games involving Mathematics).
- Instructional and learning strategies that reflect higher order thinking skills will be a focus.

Professional Learning Teams

The role of the professional learning team is to promote effective and ongoing learning opportunities that focus on improving the quality of instruction, thereby enhancing student achievement. As a result, staff members engage in professional dialogue and development, to further their knowledge and understanding of excellent numeracy programs.

It is expected that:

- Each school will have a Numeracy Committee made up of representation from administration, special education and teachers of Mathematics from each division and/or grade level.
- Professional Learning Communities, made up of staff members with a shared focus, will meet regularly to discuss ways that their own teaching practices can be enhanced to improve the learning of students.
- The school board will provide sustained, collaborative opportunities for teachers and administrators to meet the needs of struggling students in Mathematics through cross-panel discussion, planning, experimentation, and sharing of best practices.
- The school board will provide professional learning on the use of manipulative and information and communication technologies - including assistive and adaptive technologies.

Home, School and Community Partnerships

School staff members know the importance of paying attention to nurturing relationships with parents/guardians and the larger school and parish communities. The staff will facilitate opportunities for the partners to learn and work together in order to further improve student learning. Regular communication and collaboration with a focus on high expectations and improved achievement for all students are necessary.

It is expected that:

- The School Improvement Committee, with the leadership of the school principal, will share the School Improvement Plan's numeracy goals and EQAO results with the Catholic School Council, and provide opportunity for feedback and dialogue.
- Schools will develop an effective communication plan between home and school to:
 - Guide course selection as elementary school students prepare to enter secondary school
 - Familiarize parents with current Mathematics instruction and assessment, including hands on exposure to manipulatives and to information and communication technologies
 - Advise parents on the importance of Mathematical Literacy and on ways to support students' Mathematical learning at home.
- Staff will engage parents/guardians using a variety of strategies to support and enhance good numeracy practices in the home including:
 - Mathematical Literacy nights
 - Participation in Mathematics contests.

Leadership and Co-ordination

Strong, focused leadership and co-ordination are essential to the success of improving student achievement throughout the intermediate grades. Staff members should participate in shared leadership where they each contribute to the development and implementation of a common vision. It is the principal's responsibility to provide appropriate balance of encouragement and support to promote the development of vibrant professional learning communities, who, through dialogue and action, can bring about effective teaching practices in the classrooms.

The school improvement planning process is instrumental in bringing about a shared vision, setting goals, and using strategies, such as focused professional development, acquiring and using pertinent teacher and student resources in order to bring about change that positively impacts on students' learning. The school's Mathematical Literacy goals are developed collaboratively and direct practices that will lead to higher student achievement.

It is expected that:

- The principal will lead the staff in the development of a School Improvement Plan, with Mathematical Literacy goals that are developed by analyzing and dialoguing about school and classroom data, board and school targets, which will improve students' Mathematical knowledge of content and thinking skills.

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- The principal will support Professional Learning Communities and ensure that they meet to discuss, plan and exchange ideas.
- The principal will identify and empower leaders and aspiring leaders within the Mathematical Literacy initiatives.

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