



# MATHEMATICS STRATEGY

## CONTEXT

The York Region District School Board (YRDSB) recognizes that understanding and appreciating mathematics is essential for students in becoming leaders and contributing members of a changing society. Educators recognize the significant role that they play in ensuring that all students are effective problem solvers and critical thinkers who are equipped with fundamental math skills. Students have indicated that the mathematics they learn in class needs to be relevant and useful for everyday life and connected to real-life problems. District, provincial and international assessment results in mathematics consistently indicate the need to focus on thinking, application and problem solving skills.



### BUILDING KNOWLEDGE AND CAPACITY

*Building knowledge and capacity* involves connecting current research and practice regarding the developmental nature of mathematics in a Comprehensive Math Program. Valuing YRDSB learning enables educators to build capacity as change agents in the math classroom.

#### ACTIONS

##### System

Build a collective understanding of a Comprehensive Math Program and make connections among the components (Environment, Learners and Learning) through professional conversations and the development of professional learning opportunities

Learn with and from researchers and educators to support ongoing strategic planning, implementation and monitoring of the Math Strategy

Investigate diverse and emerging resources about learning and teaching mathematics and communicate this learning using the BWV math page Research and Learning

Design and provide additional qualification (AQ) courses rich in math content, curriculum, pedagogy and assessment

Explore and integrate the innovative use of emerging technologies and digital learning practices and student learning experiences

Support Administrators, Regional and School-Based Math Leaders, and Math Subject Heads in math learning and leading

Seek out and share curriculum resources that are inclusive of intersecting identities (e.g., Indigenous, racialized and 2SLGBTQ+ students, ELLs, students with special education needs, children and youth in care and those students in difficult economic circumstances)

Learn with and from researchers and educators about teaching and assessing in ways that are culturally relevant and responsive

Participate in Ministry of Education learning opportunities

##### School

Explore the Instructional Core within a Comprehensive Math Program through professional conversations, school improvement planning and co-learning opportunities

Review the BWV math page Research and Learning to build capacity

Engage in co-learning regarding the developmental nature of mathematics

Explore diverse resources, including Ministry resources at [EduGAINS](#) and [The Learning Exchange](#)

Participate in Ministry of Education learning opportunities

Develop an ongoing plan, which includes teacher-leaders, to support educator learning in the area of mathematics

##### Classroom

Apply new learning into program planning and practice to enhance student learning experiences and outcomes (e.g., a Comprehensive Math Program, [Focusing on the Fundamentals of Math](#))

Identify, learn about and implement research-based instructional and assessment strategies found on the BWV math page, Research and Learning, to support student learning

Integrate the innovative use of emerging technologies and digital learning resources to enhance and transform student learning experiences

Develop mathematical understanding through research (e.g., growth mindset, pedagogical math content)



### LEARNING, TEACHING AND ASSESSMENT

*Learning, teaching and assessment* in mathematics reflects the interconnectedness of the Environment, the Learners and the Learning in a Comprehensive Math Program.

#### ACTIONS

##### System

Create resources to support educators in understanding and implementing a Comprehensive Math Program reflecting the interconnectedness of the Environment, the Learners and the Learning

Support educators in using students' social identities, lived experiences, strengths, needs and interests to plan, teach, and assess within a Comprehensive Math Program

Design and provide mathematics learning opportunities focusing on curriculum expectations, math content, pedagogy and assessment

Promote professional learning by means of social media communities (e.g., Twitter using [#YRDSBmath](#))

##### School

Deconstruct a Comprehensive Math Program to identify areas for professional learning related to the interconnectedness of the Environment, the Learners and the Learning

Unpack Ministry and YRDSB math resources in school teams to support a collaborative learning culture

Engage in professional math learning, as a collaborative school team, which is reflective of student needs, especially of those who are underserved and underperforming

Collaboratively analyze evidence of student learning to inform program planning in mathematics

Collaboratively design learning that supports deep understanding of curriculum expectations and is reflective of students' personal, academic and social identities

Participate in social media professional learning communities (e.g., Twitter using [#YRDSBmath](#))

##### Classroom

Implement a Comprehensive Math Program reflective of the interconnectedness of the Environment, the Learners and the Learning

**Environment** - Create a safe, inclusive and responsive learning environment:

- Set up collaborative work spaces
- Promote a positive disposition, resilience and a growth mindset toward mathematics and learning
- Build a talk community that intentionally considers the diverse needs of each learner

**Learners** - Know your learners through understanding their personal (interests), academic (strengths and needs) and social identities:

- Ensure equitable access to learning
- Use fair, transparent and equitable assessment practices in mathematics
- Provide experiences that enable students to think critically about social, political and economic realities within and beyond their own lives through mathematics

**Learning** - Use a variety of learning experiences to support problem solving:

- Design opportunities where problem solving is central to learning mathematics
- Design responsive learning and assessment experiences that are reflective of students' social identities and are inclusive of students with marginalized identities
- Understand mathematical content knowledge for teaching to support student learning
- Value and include student voice and lived experiences as part of learning and assessment

Engage in ongoing professional learning, including learning about equity and diversity, to inform pedagogy and assessment practices in mathematics

Review teaching and learning materials and resources to identify and address bias and discrimination, and remove barriers to learning

Ensure instruction and assessment practices are bias-aware, barrier-free and culturally responsive



### INTERVENTIONS

*Interventions* include early and ongoing supports and personalized programming that enhance learning and promote success for all students.

#### ACTIONS

##### System

Support educators in building safe and responsive mathematics learning environments that reduce math anxiety and foster inclusion for all students, with particular attention to those with marginalized identities including Indigenous, racialized and 2SLGBTQ+ students, ELLs, students with special education needs, children and youth in care and those students in difficult economic circumstances

Connect staff to resources, through the Learners math page on the BWV to support students who may be at risk of not succeeding

Provide professional learning opportunities that are focused on responsive, assessment-based instruction for all students

Expand upon partnerships with Student Services, Inclusive Schools and Community Services, Leadership Development and Curriculum & Instructional Services to create, implement and monitor learning supports

Support educators to understand, plan and implement the necessary teaching strategies and accommodations to support all students

##### School

Understand how a Comprehensive Math Program supports all learners

Collaborate with Regional and School-Based Math Leaders and Math Subject Heads, SERTs, EAs, ESL teachers and other human resources to meet the needs of individual learners

Collaborate in school teams to learn about mathematical content knowledge and a broad range of instructional and assessment strategies and select those that meet the needs of individual learners

##### Classroom

Identify, learn about and implement research-based instructional and assessment strategies found on the BWV math page, Learners, to support students who may be at risk of not succeeding

Design safe, inclusive and responsive learning environments that leverage learners' assets and social identities to personalize learning experiences to meet the needs of all learners

Work with learners to be self-reflective and advocate for their learning

Review and update IEP based on understanding student exceptionalities and analysis of student learning in mathematics

Consider the proficiency of English Language Learners using Steps to English Proficiency (STEP) when designing learning and assessment

Investigate learning pathways and how to support the well-being and achievement of students who may be at risk of not succeeding

Integrate the innovative use of emerging technologies and digital learning resources to enhance and transform learning experiences for students who may be at risk of not succeeding



### FAMILY/COMMUNITY ENGAGEMENT

*Family/community engagement* recognizes the important partnerships among educators, families and communities that support mathematics education. Educators value the role of families and communities in supporting student learning.

#### ACTIONS

##### System

Identify mathematics as a focus for family learning

Update and maintain resources on the [math page of YRDSB's public website](#) to better allow families to connect with math learning happening at schools

Update and maintain resources on the math page of the BWV to support educators in their work with families, related to mathematics learning

Update Trustees and Advisory Committees (e.g., PEAC, SEAC, etc.) about successes and ongoing supports related to mathematics

Use survey information to inform professional learning related to mathematics programming (e.g., Every Student Counts Survey)

##### School

Provide an overview of a Comprehensive Math Program and how families can support mathematics learning

Provide opportunities for families to engage in mathematics together to develop a growth mindset and positive disposition towards mathematics learning

Include a mathematics focus in school communications

As a starting point for developing relationships with families, refer them to the [math page of YRDSB's public website](#) to help them connect with math learning happening at schools

Provide ongoing mathematics updates at School Council meetings

Engage with community partners, who reflect the many dimensions of diversity, to enrich students' understanding of mathematical approaches, contexts and related careers

Establish structures to regularly gather feedback and promote mathematics education with family and community members

##### Classroom

Nurture collaborative relationships with families to support math learning at home, based on each child's strengths, needs and social identities

Access and share appropriate resources with parents and community to support student learning (e.g., as found on the BWV math page Home School Connections and on the math page of YRDSB's public website)

Include information and supports regarding mathematics in classroom communications to families

Explore opportunities to promote experiential math learning through family and community partnerships

Increase awareness of multiple pathways in mathematics education

## RESOURCES

Aligning resources effectively, purposefully and efficiently to focus on what matters most is a key leadership function. Resources have been identified to support the implementation of the Math Strategy.

They are organized into four categories:

- Core Resources
- Supporting Specialized Populations Resources
- Parent/Guardian/Family Resources
- Facilitation Resources