

PILLARS *for Teaching and Learning* MATHEMATICS

INFORMED AND INTENTIONAL PRACTICES

Understanding the Curriculum

- Knowing and making sense of mathematics for teaching
- Understanding learning progressions
- Applying big ideas



Embedding the Interrelated Mathematical Processes

- Communication
- Connections
- Mental mathematics and estimation
- Problem solving
- Reasoning
- Technology
- Visualization



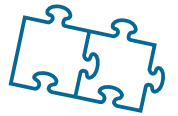
Applying Effective Teaching Practices

- Establish mathematics goals to focus learning.
 - Implement tasks that promote reasoning and problem solving.
 - Use and connect mathematical representations.
 - Facilitate meaningful mathematical discourse.
 - Pose purposeful questions.
 - Build procedural fluency from conceptual understanding.
 - Support productive struggle in learning mathematics.
 - Elicit and use evidence of student thinking.
- (Excerpted from National Council of Teachers of Mathematics [NCTM], *Principles to Actions* 3)



Bridging Assessment and Instruction

- Assessment *for* learning
- Assessment *as* learning
- Assessment *of* learning



RESPONSIVE LEARNING ENVIRONMENTS

Ensuring Access and Equity

- The strengths and needs of each student
- High expectations for each student
- Indigenous perspectives
- Cultural and contextual relevance
- Differentiated supports



Developing Mindsets

- An appreciation of mathematics
- A willingness to take risks
- Curiosity and questioning
- Productive struggle



Nurturing Learning Communities

- A sense of safety and belonging
- Self-confidence and self-efficacy
- Self-reflective learning
- Student voice



A CULTURE OF LIFELONG PROFESSIONAL LEARNING

Continually Improving

- “Teachers’ mathematical knowledge and their capacity to use it in practice
- Teachers’ beliefs and dispositions that foster their continued learning
- Teachers’ capacity to notice, analyze, and respond to students’ thinking
- Teachers’ collegial relationships and learning structures that can support and sustain their learning” (Doerr, Goldsmith, and Lewis, cited in NCTM, *Principles to Actions* 101)



Collaborating

- Teachers with students
- Teacher colleagues within and across grade levels
- Teachers with numeracy leaders and/or instructional coaches
- Teachers with mathematics educators and mathematicians
- Teachers with other stakeholders



Reflecting

- Focus on student thinking and student demonstrations of understanding
- Seek opportunities to participate in formal and informal professional inquiry to improve teaching practice

