

Implementing New Initiatives for Mathematics

By Martina S Walton

Initiative	Resources	Implementation Strategy	Questions
1. Focus on identifying the "BIG IDEAS" and Teaching Proportional Reasoning.	<p>Mathematical Profile: A Comprehensive Approach: Durham District School Board. (Portal) http://bit.ly/1D56c0</p> <p>Grade 5 Mathematics Scope & Sequence Document (DDSB print resource)</p> <p>BIG IDEAS Questioning : K-12 Proportional Reasoning http://bit.ly/1tQqLHn</p>	<p>Plan lessons using the 3-Part format.</p> <p>Allow students to work in Math teams</p> <p>Balance teacher directed and student focused learning.</p> <p>Encourage students to connect the things they learn in various strands of math with other knowledge</p> <p>Develop open-ended questions for students to investigate</p> <p>Incorporate parallel tasks and scaffolding strategies</p>	<p>Will every student be able to learn this way?</p> <p>What if there are students who cannot work well in teams?</p> <p>What resources do I have to develop specific problems and activities?</p>
2. Math learning environment: COMMUNICATING about Math	<p>Making Math Meaningful to the Canadian Student, K-8 : Marian Small</p> <p>Setting up Positive Norms in Math Class: Jo Boaler http://youcubed.stanford.edu/positive-classroom-norms/</p> <p>TIPS4RM: Mathematical Processes, eduGAINS Ontario: http://bit.ly/1tQvz17</p>	<p>Ask students to reflect on assessments</p> <p>Operate with a growth mindset to promote a positive attitude about math</p> <p>Encourage students to ask questions and answer questions of peers</p> <p>Provide opportunities for students to come up with math questions</p> <p>Have students present their math knowledge in a variety of visual forms with linking language to show ideas.</p> <ul style="list-style-type: none"> • Use literacy strategies to help students make sense of what they read and see, e.g., anticipation guide, word wall, mind mapping. • Encourage students to use correct mathematical language and conventions, e.g., present arguments during group or class discussions, explaining solutions. • Introduce new terminology in a variety of ways, e.g., demonstrations, examples, definitions. • Coach students in proper usage of terminology and conventions, as needed. • Model the correct use of mathematical symbols, conventions, vocabulary, and notations. • Provide informal feedback to individual students • Display samples of student work (TIPS4RM) 	<p>How can I reach every student to make sure they feel comfortable communicating about Math?</p> <p>Do I have all of the knowledge required to provide instruction on proper terminology and definitions?</p> <p>Will a word wall help more if students are part of creating it?</p>
3. Develop a deeper understanding of PROBLEM SOLVING for students	<p>Guides to Effective Instruction K-6: Volume Two - Problem Solving and Communication http://www.eworkshop.on.ca/edu/resources/guides/Guide_Math_K_6_Volume_2.pdf</p> <p>TIPS4RM: Mathematical Processes, eduGAINS Ontario: http://bit.ly/1tQvz17</p>	<p>Design a 4-step Problem Solving model and CO-CREATE the model from scratch with the class to promote student ownership of the strategy</p> <p>Add descriptive feedback to the steps with student voices present on the math wall.</p> <p>Develop a Problem Solving Continuum using a problem and multiple levels of responses; have students decide where the responses belong on the continuum and evaluate them based on what they know about problem solving; add descriptive feedback with student voices.</p> <ul style="list-style-type: none"> • Collaborate with students, asking questions or thinking aloud • Scaffold based on knowledge and skills of individual students. • Provide resources and time for students to gather data, detect patterns, make and justify conjectures. • Guide students as they apply their chosen strategy. • Facilitate the purposeful sharing of different problem solving strategies for the same problem. • Direct students to use multiple strategies to solve the same problem, when appropriate. • Validate different approaches to the same problem. • Support and encourage risk taking, and applaud creative approaches. • Encourage independence and interdependence. • Facilitate the sharing of student findings. • Model alternative procedures and strategies, such as using manipulatives and technology. (TIPS4RM) 	<p>How do I incorporate teaching problem solving with teaching the fundamental concepts of each Math unit?</p> <p>What else can I do to help students utilize the resources available to them?</p>