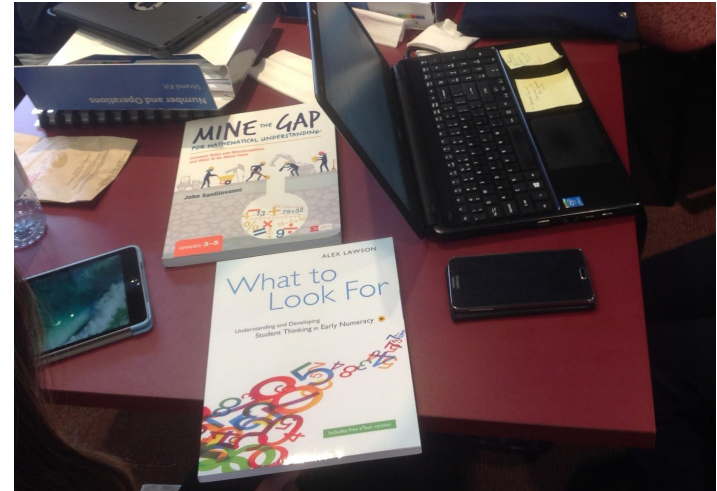
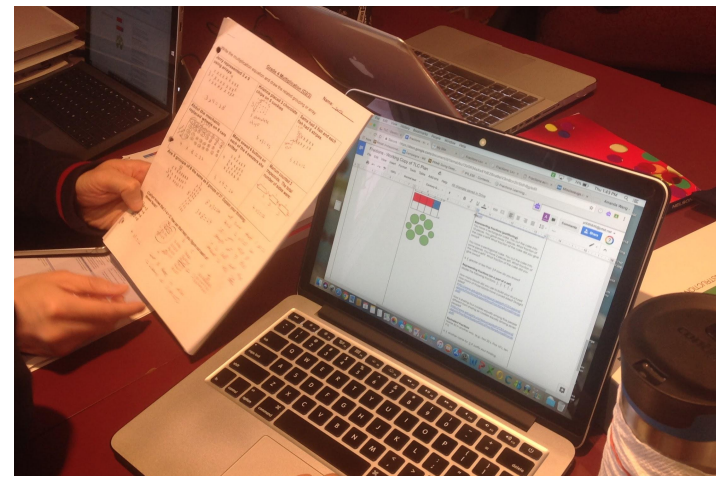


TLC - Using Developmental Continuum to Address Student Learning Needs

D. Tran, K. Pothula, A. Cheng, S. Engalla, and A. Wang - Peel District
School Board


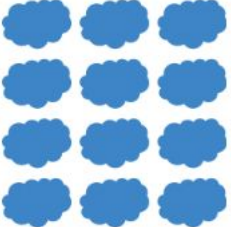
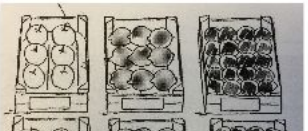

Professional Learning

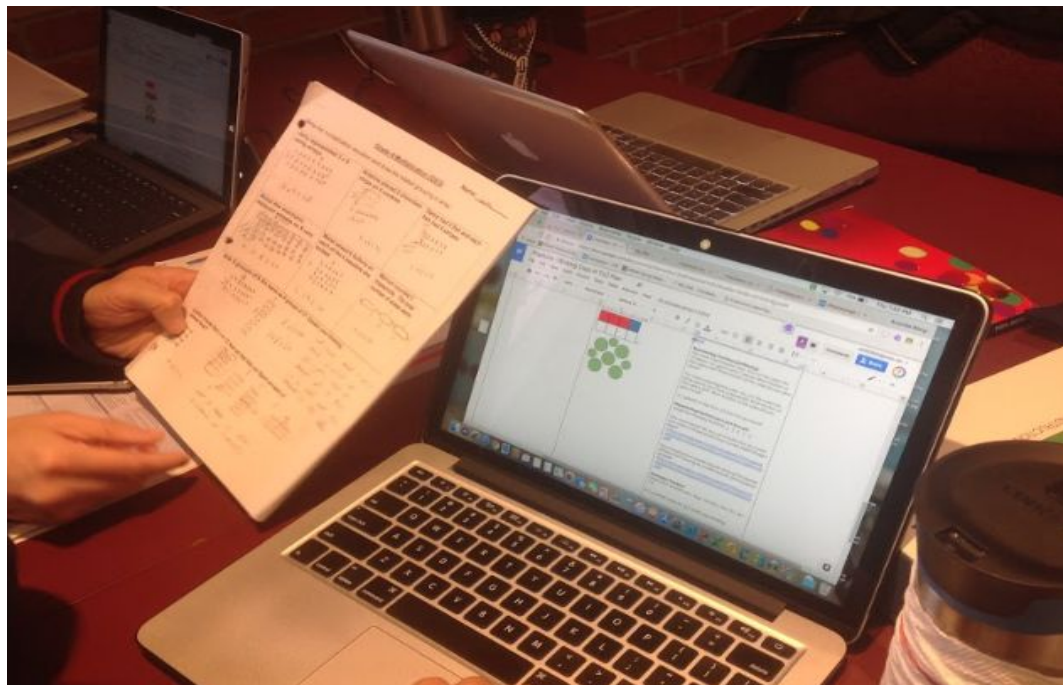
- Collaboration (cross school and working with our instructional coaches) allows for the exchange of ideas
- Release time and collaboration allows the deprivatization of practice and sharing of resources
-
- This opportunity allows teachers to learn new ways to teach mathematics



Teacher Learning and Development

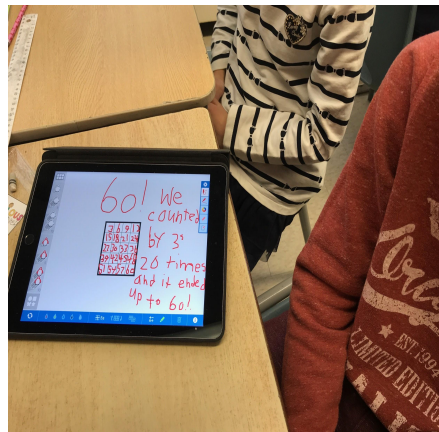
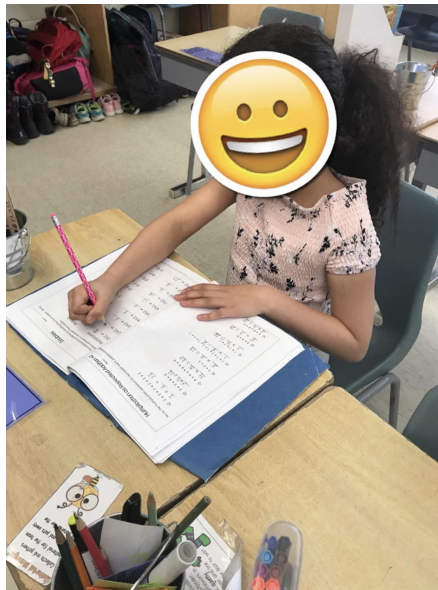
Grade 3 - TLC Framework - Multiplication

Grade 3 Expectations	Diagnostic Assessment	Skills/Concept	Problem Solving
<p>Number Sense and Numeration</p> <p>-relate multiplication and division by one-digit divisors to real-life situations, using a variety of tools and strategies (array method, number lines, etc.)</p> <p>-count forwards and backwards using concrete materials (e.g., number lines, calculators, coins) and strategies.</p> <p>-demonstrate an understanding of multiplication and division.</p>	<p>How many suns are there? How do you know? Explain your thinking in two or more ways.</p> 	<p><i>Development #1 - Counting by ones</i> How many clouds are there? Show two strategies. (note: students will use skip counting or repeated addition)</p>  <p>Introduce array (rows and columns)</p> <p>How many apples, lemons and tomatoes are in the picture?</p> 	<p>Games to support number fluency (multiplication): Tic-Tac-Toe Four Connect Products - https://www.youcubed.org/tasks/tic-tac-toe-products/ Concentration - Strategies pg. 20</p> <p>How Close to 100? (adapted by youcubed.org)</p> <ul style="list-style-type: none"> This game is played in partners. Each student will have their own 100 grid. The first partner rolls two number dice. The numbers that come up are the numbers the child uses to make an array on the 100 grid. They can put the array anywhere on the grid, but the goal is to fill up the grid to get it as full as possible. After the player draws the array on the grid, s/he writes in the number sentence that describes the grid. The second player then rolls the dice, draws the number grid and records their number sentence. The game ends when both players have rolled the dice and cannot put any more arrays on the grid. How close to 100 can you get? <p>Choose one kind of pattern block that will cover the space.</p> 

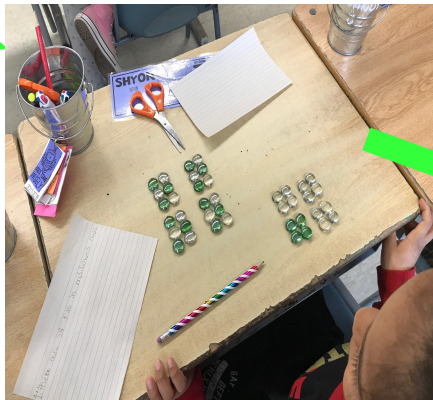


- explore various developmental continua (e.g., PRIME, Lawson's, Fosnot, etc.)
- use developmental continua to address students' misconceptions
- learn to notice and name the math by anticipating possible misconceptions

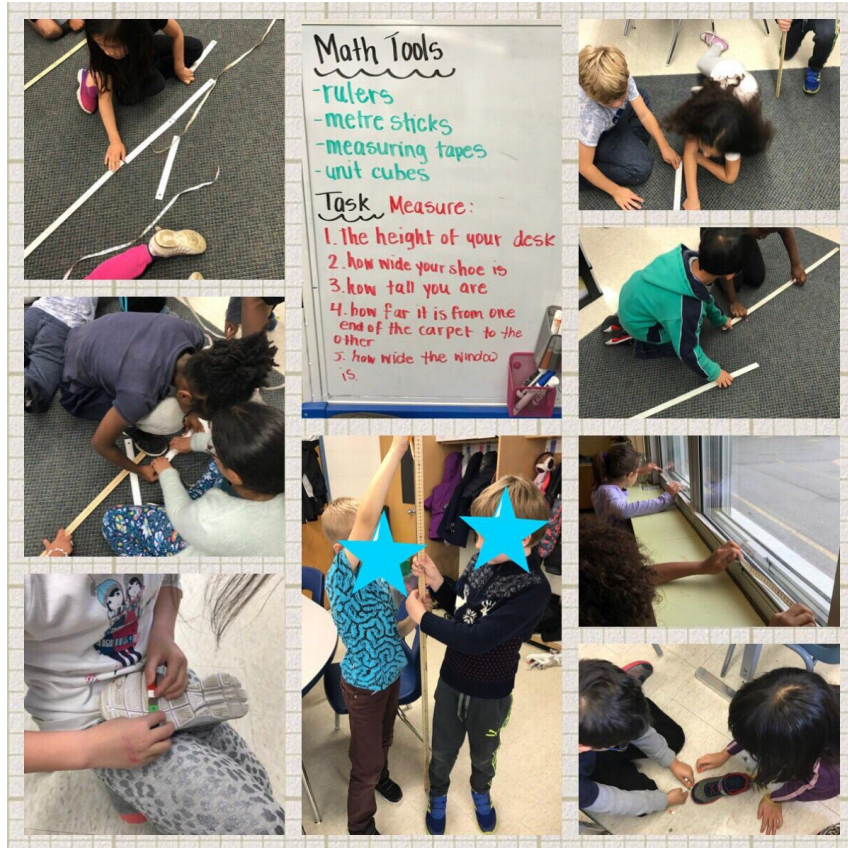
Student Learning and Development



Moving from worksheets to visualizing mathematics and demonstrating thinking using manipulatives, and various strategies



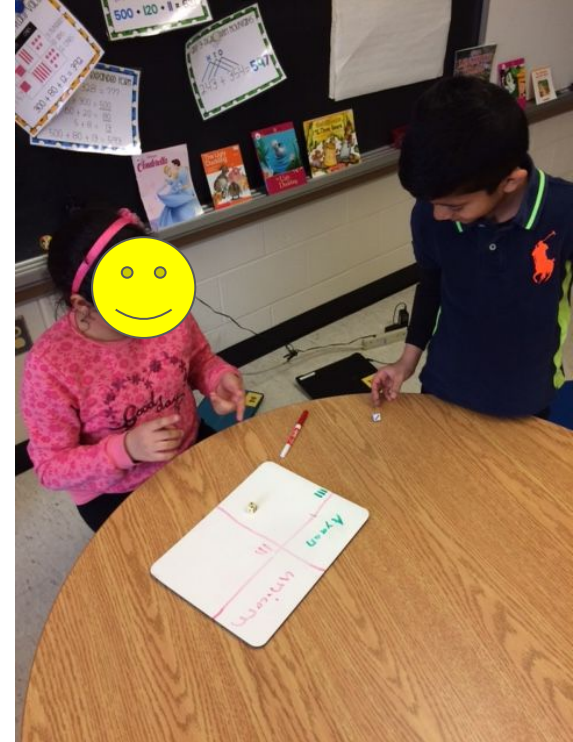
Student Learning and Development



- Development of computation fluency through conceptual understanding
- Using metre sticks/ open number lines to explore multiplication/repeated addition while measuring

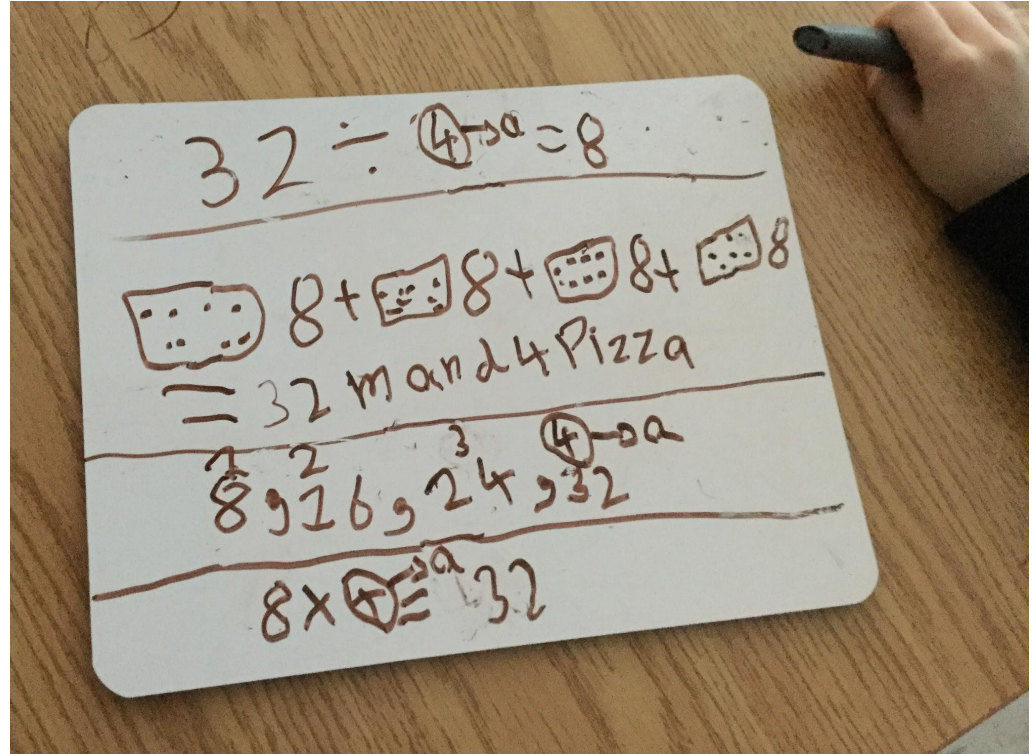
Student Learning and Development

- Math games creates meaningful situations to apply mathematical skills
- Math games are engaging for students to build fluency
- Math games also differentiate different types of learners and provides students with the opportunity to learn from others



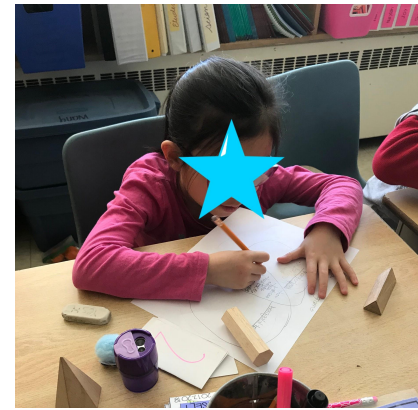
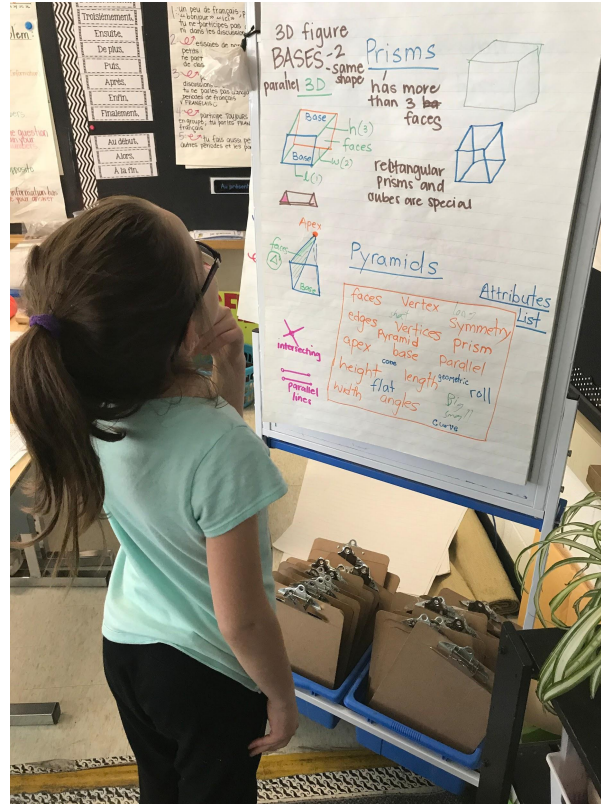
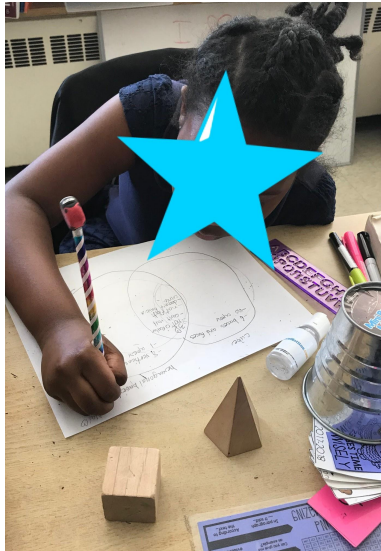
Student Learning and Development

- Students are showing their understanding of division concepts using a variety of mathematical strategies, such as skip counting, repeated addition, and using pictures



Student Learning and Development

Independence in Learning,
student driven- using anchor
charts as a reference while
working to solve problems



Sharing of Learning- PL Day



Student Learning and Development

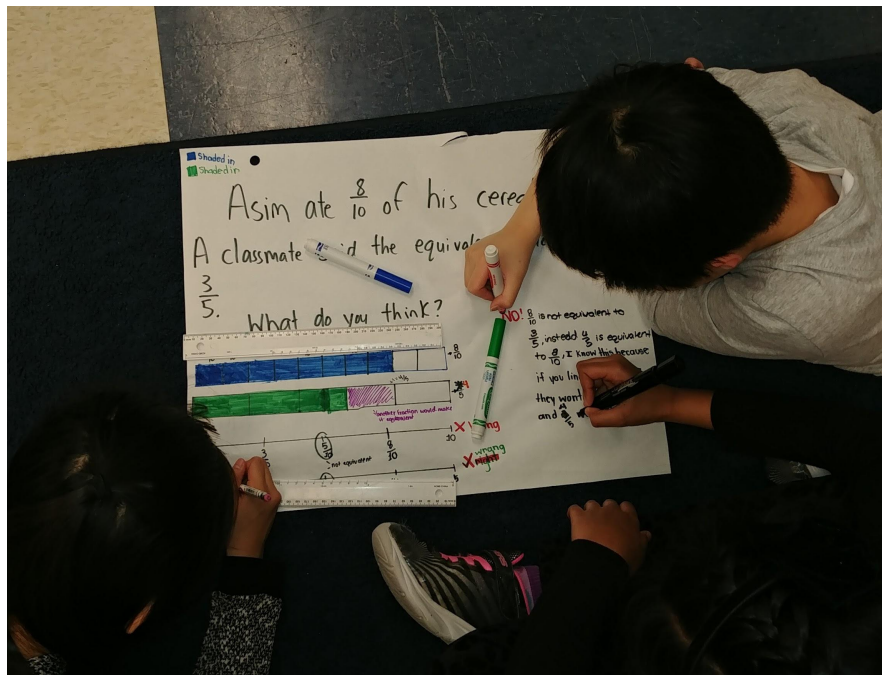
- Knowledge of a developmental continuum enables the teacher to create meaningful, parallel tasks that meet the different needs and abilities found in their classroom.
- Students are challenged, engaged, and eager to collaborate in order to reach their different learning goals.
- Accountability is achieved through strategies such as: debriefing, Math Talk, Gallery Walk, or Math Congresses.



These students are consolidating their basic knowledge of fractions by working with area models, and determining the criteria required to name a specific fraction (e.g., thirds, quarters, eighths, etc).



These students are working with fractions of a set and are investigating equivalent fractions using drawings, manipulatives, and incorporating mathematical talk.



This group understands equivalent fractions and is working with number lines in order to compare and/or order equivalent fractions.