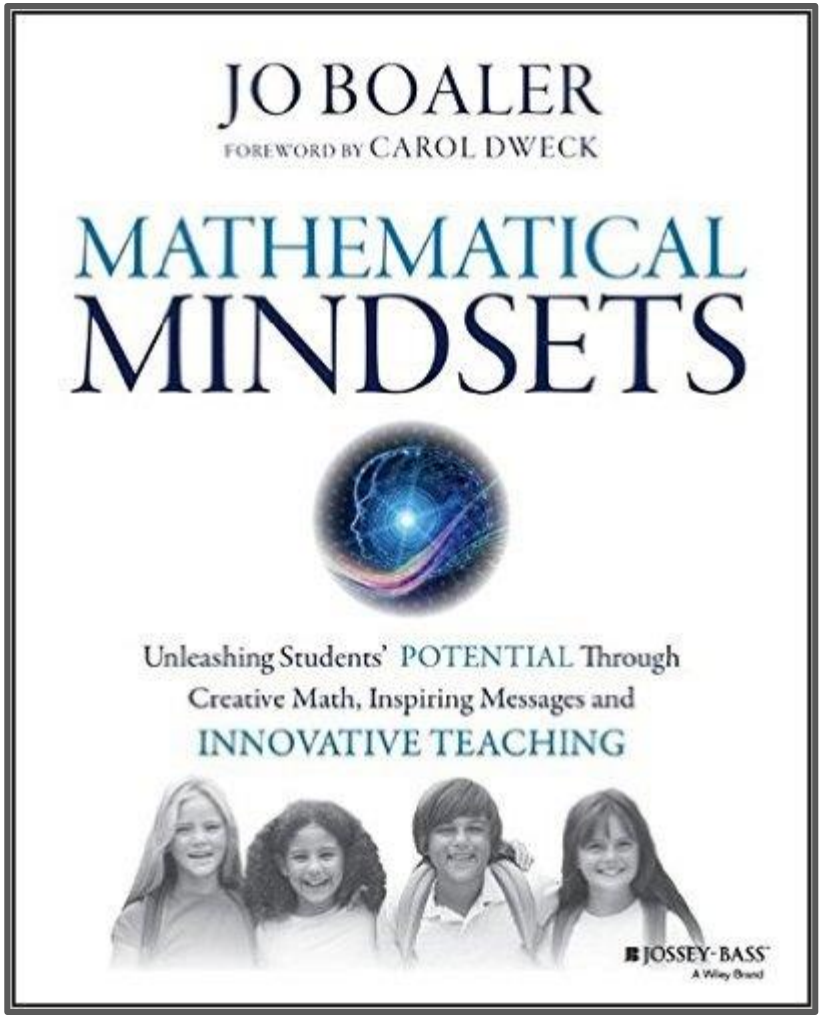
4th Grade Math Redesign Update

West Windsor-Plainsboro Regional School District

Mathematics is a beautiful subject, with ideas and connections that can inspire all students.

Professor Jo Boaler, PhD
Stanford Graduate School of Education



Growth Mindset

“Solving math tasks feels really good. I am so relieved and happy. I feel like I have accomplished more because it wasn’t a piece of cake. It was actually really hard.” - Village student, 4th grade

“I try harder in math and it makes me learn more every time I do it. I don't mind trying new things.” - Millstone River student, 4th grade

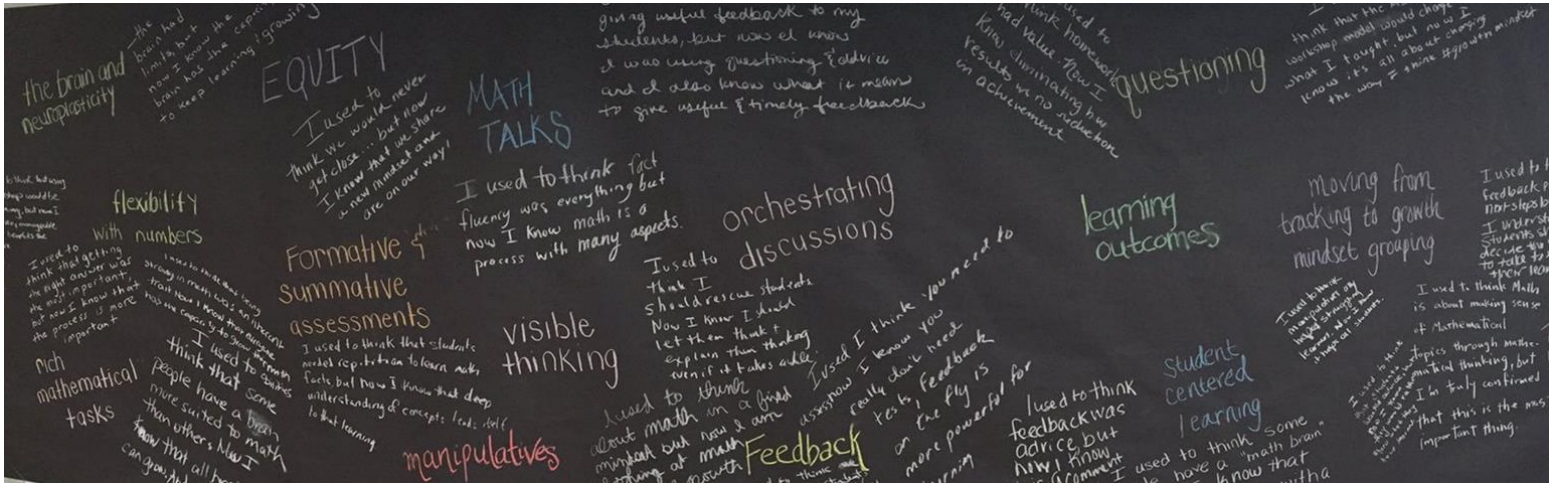
“I don’t ever think negatively about myself. I think math is really hard but that doesn’t make me think I am bad at it. I just have more to learn. I am getting the help I need to get better.” - Village student, 4th grade

“Usually when I get something wrong, I don't give up- I figure out what I did wrong and try it again. You have to learn from your mistakes so you can change.” - Village student, 4th grade

“This year... I feel smarter!” - Millstone River student, 4th grade

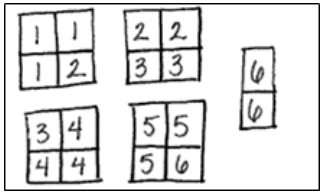
Shared Vision

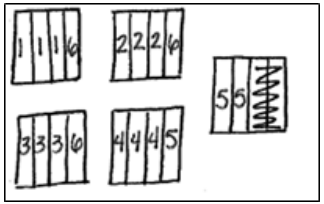
ALL learners should have access to rigorous, high-level mathematical content in an environment where risk-taking, deep conceptual understanding, and growth mindset are the norm.

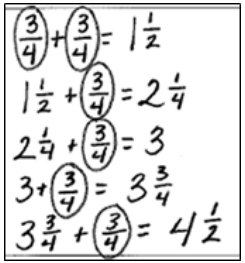


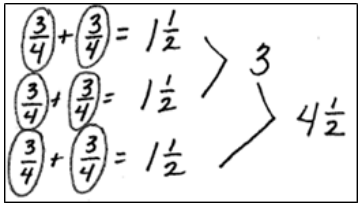
Math Task

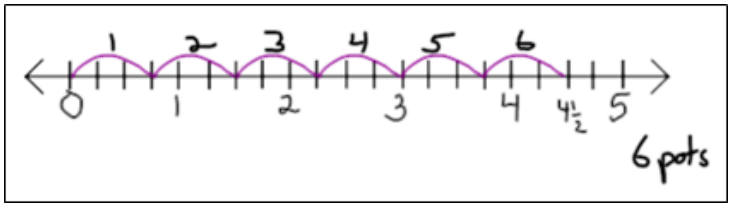
Jay is making flower pots. It takes ¾ of a package of clay to make 1 flower pot. How many flower pots can Jay make with 4 ½ packages of clay?

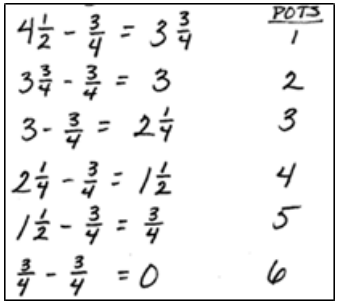


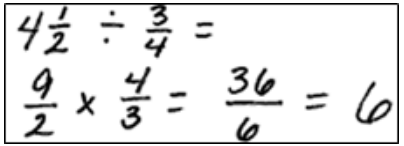










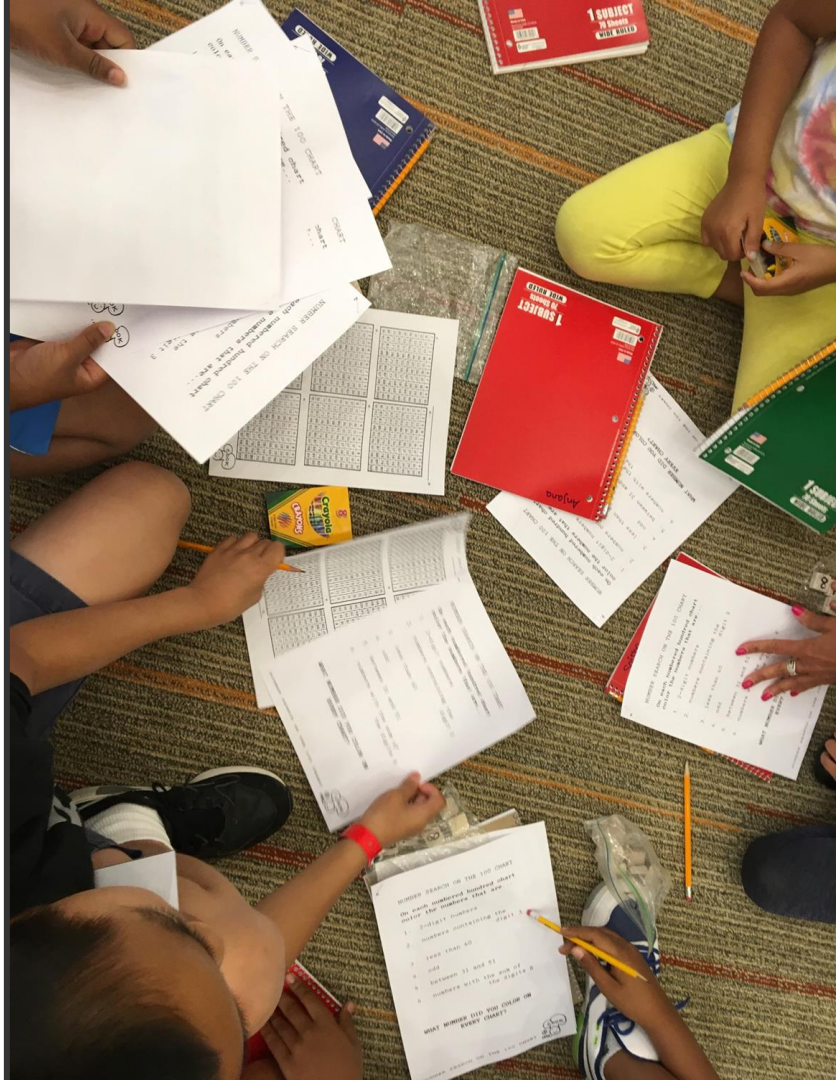


Jennifer Lempp, Math Workshop

Math Workshop

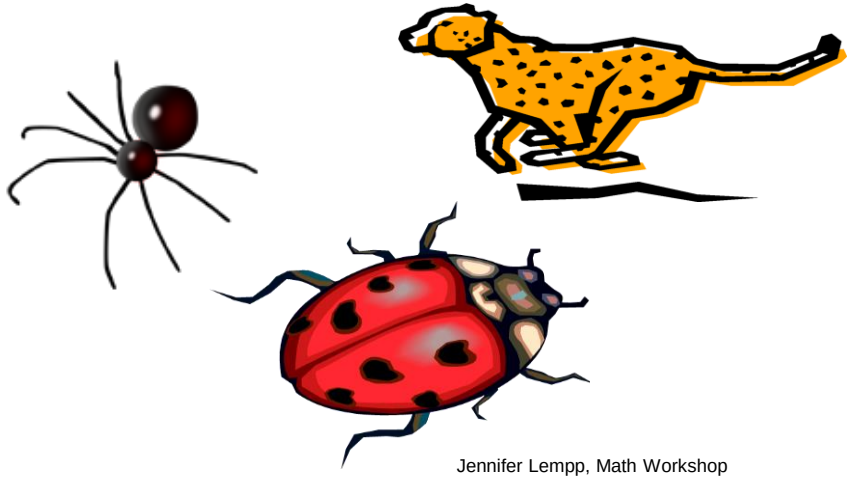
Structures to:

- Provide opportunities for rich math talk
- Support building math communities where risk-taking is the norm
- Provide opportunities for students to work individually, in partnerships, in small groups, and as a whole class to explore tasks and center activities that foster meaningful engagement
- Support reflection on learning



Number Routines

Students participate in a classroom conversation around a particular number sense routine



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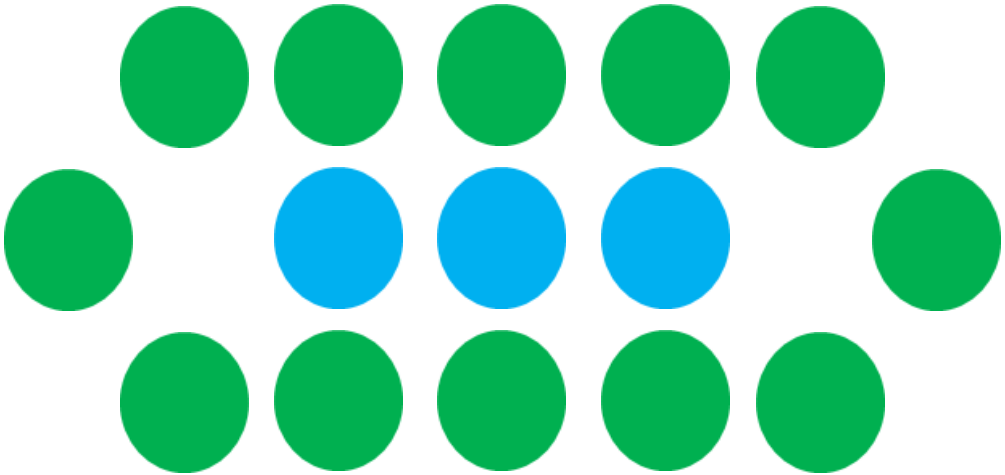
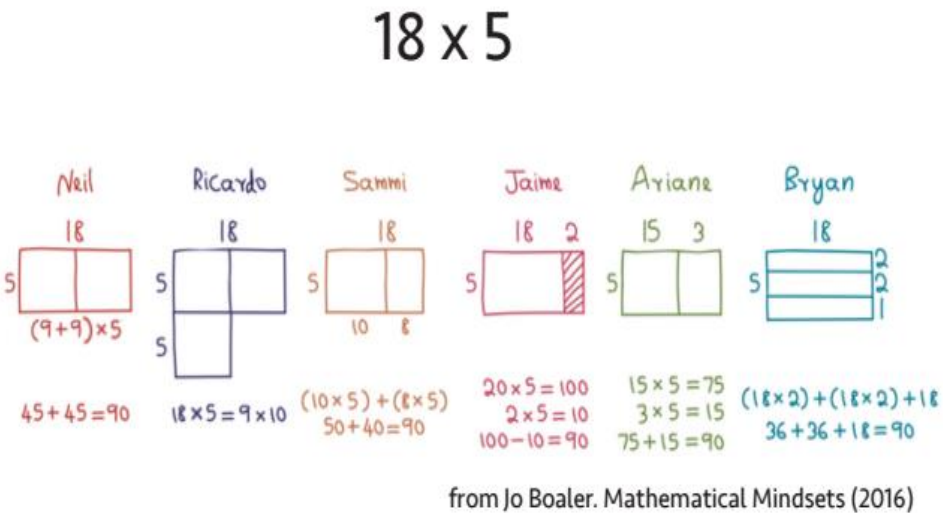


Number Talks

“I like at first you get to do a quick warm up and your brain has time to shift to the lesson. It gets you ready.” - Village student, 4th grade

“Warm-ups help me get my memories ready for math.” - Village student, 4th grade

Three surprising visual solutions. For the full activities and other examples go to https://www.youcubed.org/category/visual-math/



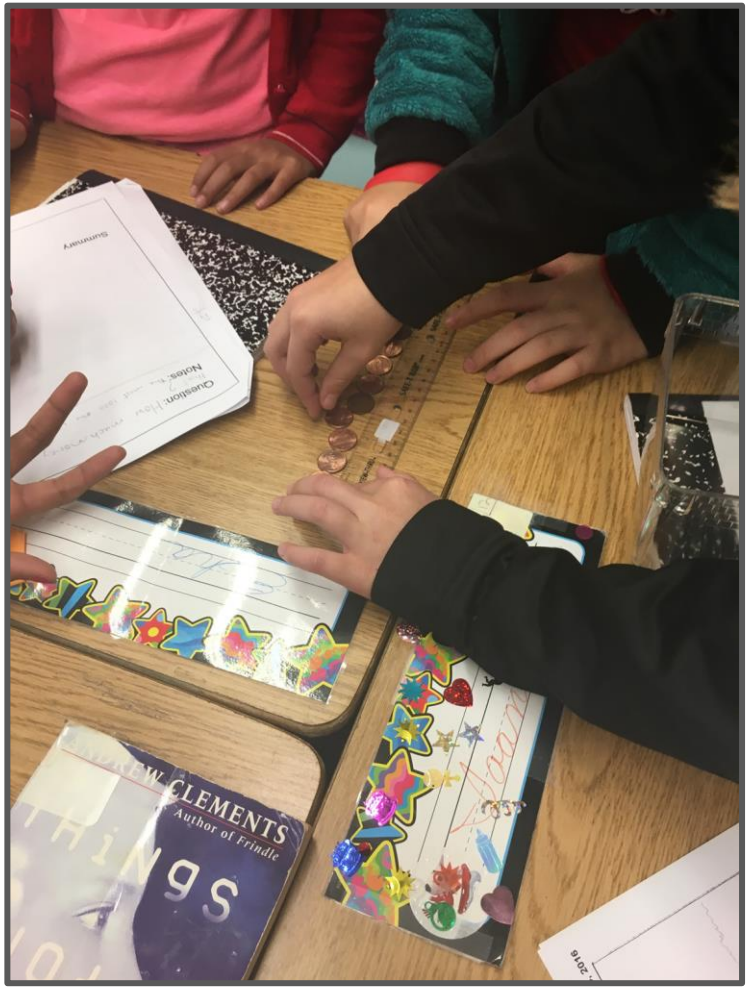
from Jo Boaler. Mathematical Mindsets (2016)

Rich Tasks

“There are so many choices. We do more games and number puzzles that make you think really hard. It is so much more fun than just 5x8 and write the answer.” - Village student, 4th grade

“This year, we push ourselves to think more.” - Millstone River student, 4th grade

“I do math at the store now. If the cashier ever gives me back the wrong change… I WILL KNOW!” - Village student, 4th grade

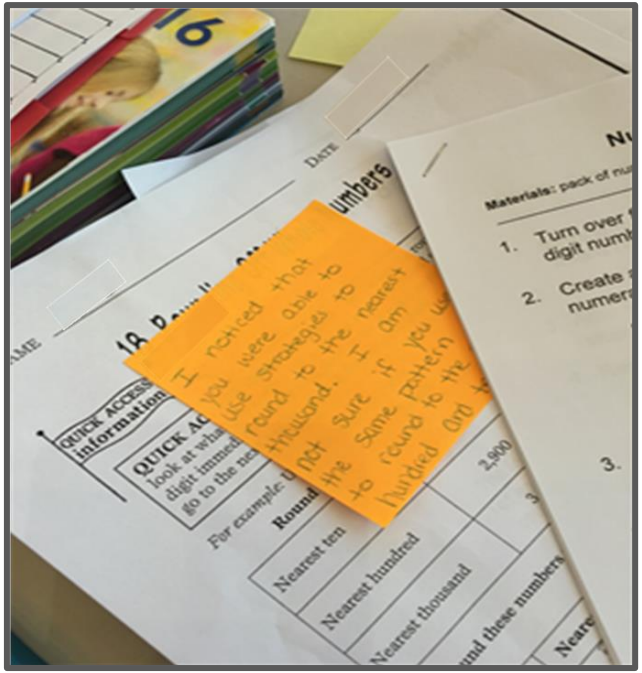


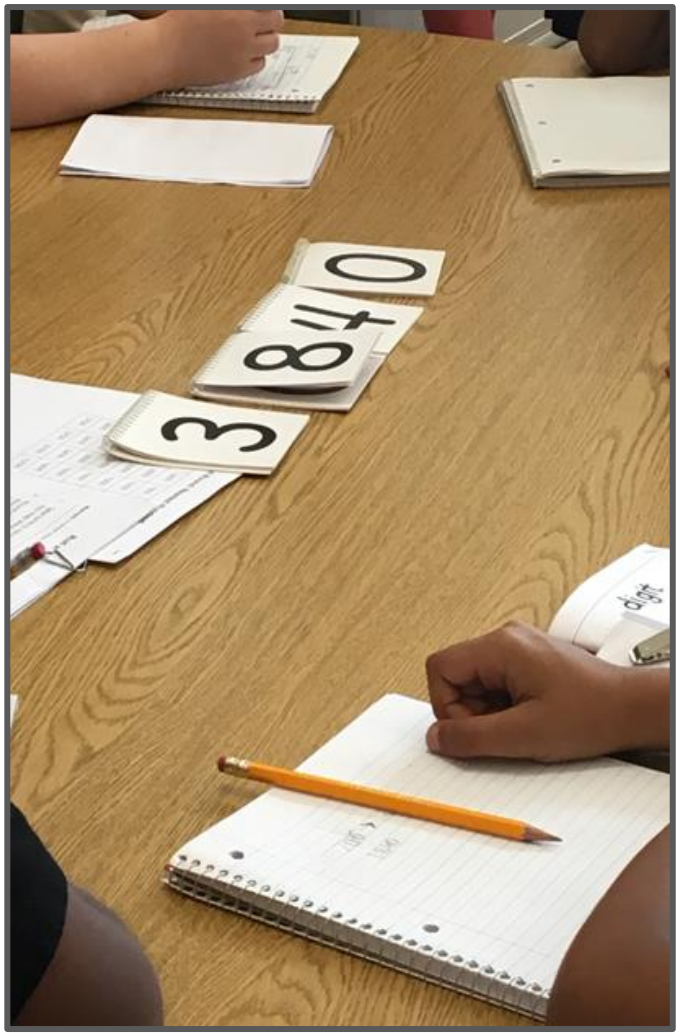
Community

“I also love teaching my strategy to my math partners. I find that to be really fun.” - Village student, 4th grade

“Math partners help each other. My partner won’t just tell me the answer though. She asks me questions that will help me figure it out.” -Village student, 4th grade

Effective Feedback





Summer Institute

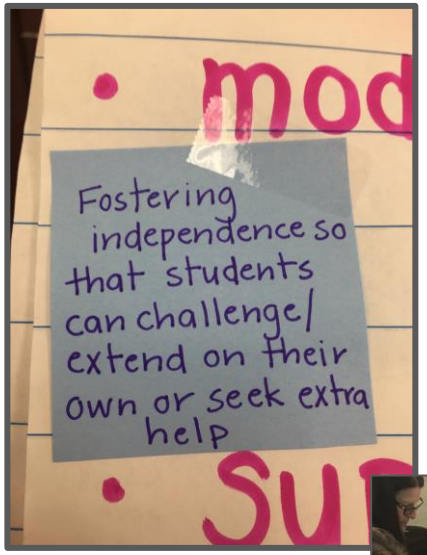
Self Efficacy Pre/Post- Most Gains

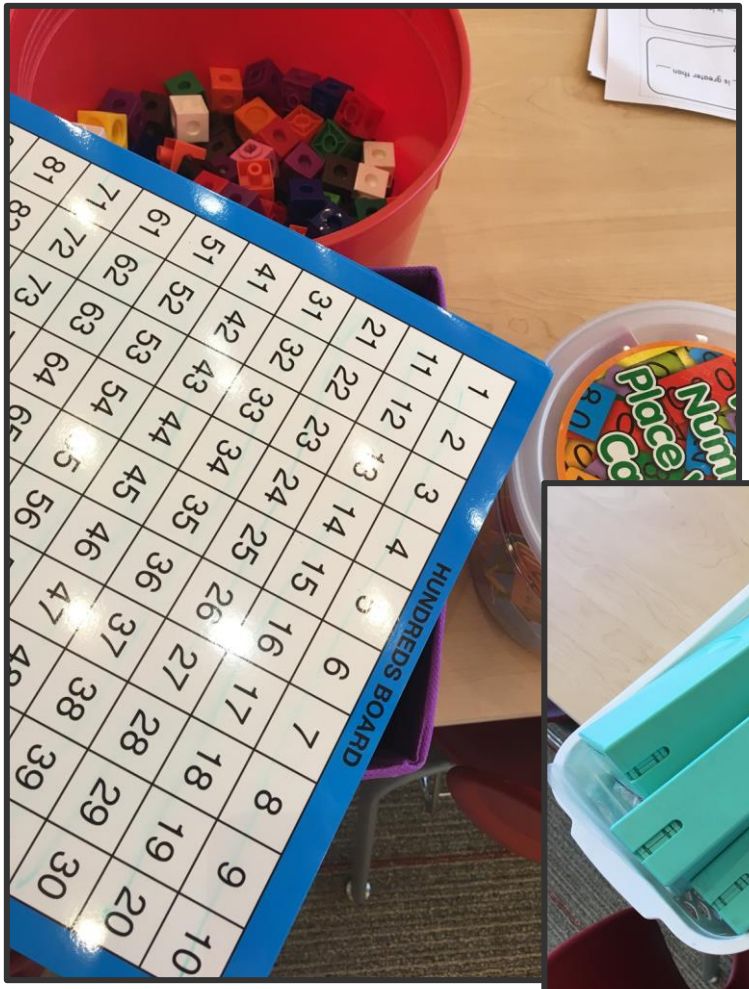
Presently, when teaching mathematics, the strength of my personal beliefs in my capabilities to…
1=weak beliefs in my capabilities 2=moderate beliefs in my capabilities 3=strong beliefs in my capabilities 4=very strong beliefs in my capabilities

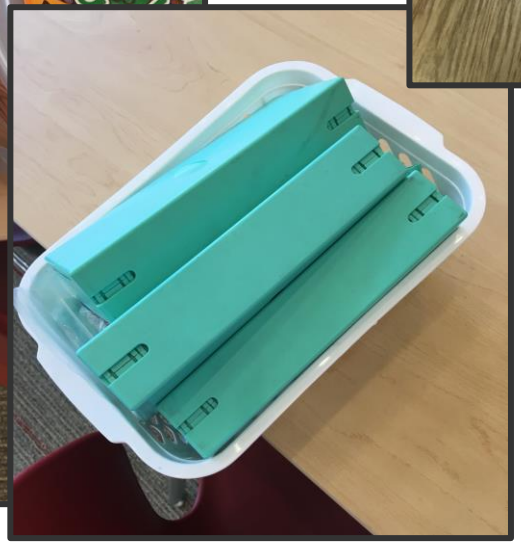
Criteria	Pre	Post
provide students with opportunities to learn at more than one cognitive and/or performance level	2.83	3.72
clarify student misunderstandings or difficulties in learning	3.0	3.63
provide students with specific feedback about their learning	2.75	3.72
actively involve students in critical analysis and/or problem solving	2.75	3.45
involve students in developing higher order thinking skills	2.75	3.36

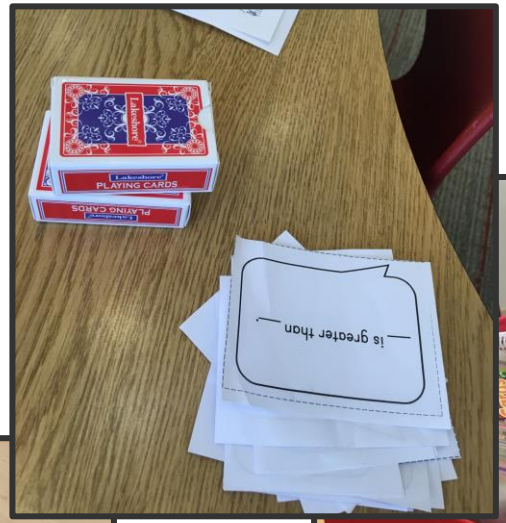
Sustained Professional Learning

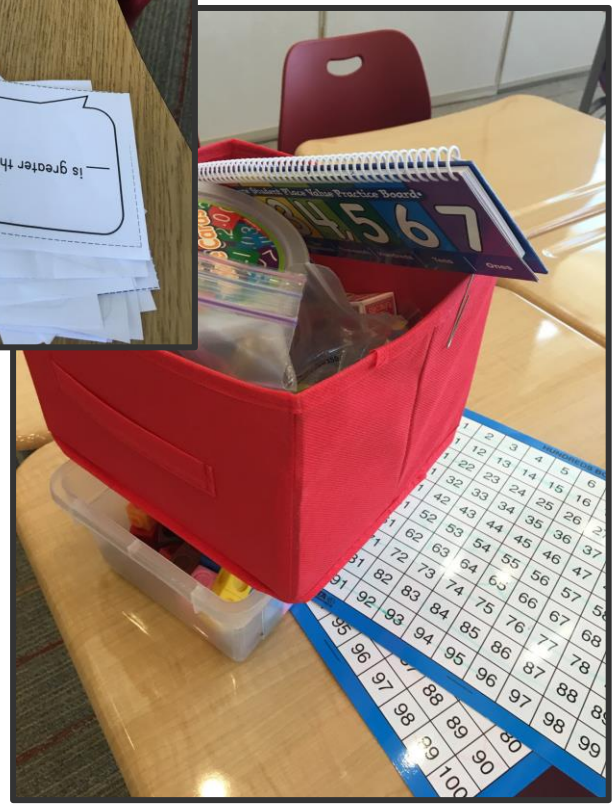
- Weekly PLC Sessions
- Math Workshop with Jennifer Lempp
- March Follow-up
- Mr. Green & Mrs. Nass attended the NCTM Regional Conference
- Professional literature & educational book clubs




HUNDREDS BOARD




PLAYING CARDS
is greater than



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