

Leveraging the Standards for Mathematical Practice for Equity and Positive Math Identity



Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS



hello@mathersgonnamath.com
<https://www.mathersgonnamath.com/>
Curated by Adrienne Baytops-Paul

I am a mather who...

SMP 1:
Makes sense of
problems and
works hard to
solve them

SMP 2:
Thinks flexibly
and understands
number
relationships

SMP 3:
Explains my
thinking and
questions the
reasoning of
others

SMP 4:
Uses
mathematics to
make sense of
the world



SMP 5:
Uses
manipulatives
and sketches to
represent
my thinking

SMP 6:
Attends to
computation and
math language
to achieve
accuracy

SMP 7:
Connects
structures such as
expressions or
equations to
mathematical
representations

SMP 8:
Uses the
repetition of
patterns to
support sense
making



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Instructional Routines

Source: [Student Achievement Partners \(LearnwithSAP.org\)](https://www.learnwithsap.org/)

Contemplate then Calculate → <i>Intended to steer focus onto a structural interpretation of a task rather than focus on the solution</i>	Capturing Quantities → <i>Focuses students' attention on quantities and relationships through abstract and quantitative reasoning</i>
Connecting Representations → <i>Designed to help students identify and make structural (place value, expressions, equations, etc.) connections to visual or written representations</i>	Recognizing Repetition → <i>Attend to the “counting, calculating, and constructing” processes while identifying patterns in order to make generalizations</i>
The 3 Reads → <i>Practice the deconstructing of mathematical story problems by rereading and reviewing the language of the task and identifying the units of measurement and mathematical question(s) prior to solving</i>	Decide and Defend → <i>Analyze another student's reasoning then critique that reasoning by drafting a viable defense of that analysis</i>



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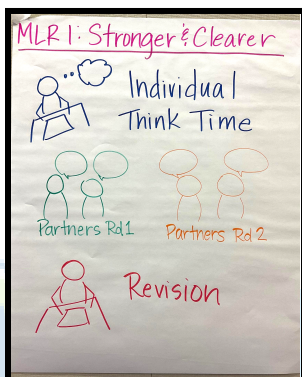
Mathematical Language Routines

Source: [Principals for the Design of Mathematics and MLRs: Promoting Language and Content Development](#)

Illustrations by Karen McPherson

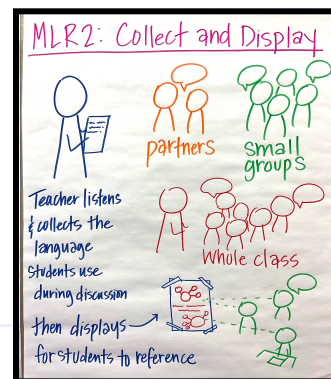
#1: Stronger & Clearer Each Time

- ***“To provide a structured and interactive opportunity for students to revise and refine both their ideas and their verbal and written output.”***



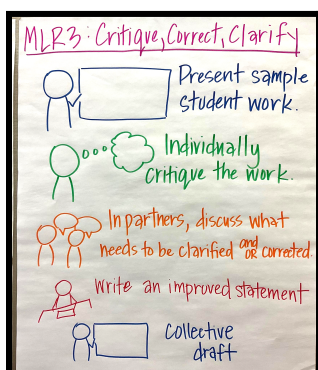
#2: Collect & Display

- ***“To capture students’ oral words and phrases into a stable, collective reference.”***



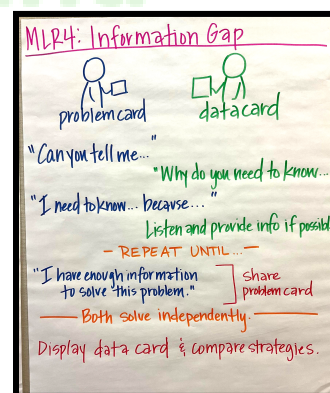
#3: Critique, Correct, & Clarify

- ***“To give students a piece of mathematical writing that is not their own to analyze, reflect on, and develop.”***



#4: Information Gap

- ***“To create a need for students to communicate.”***



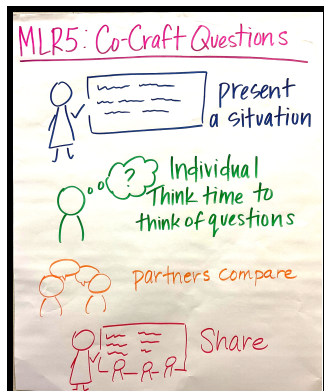
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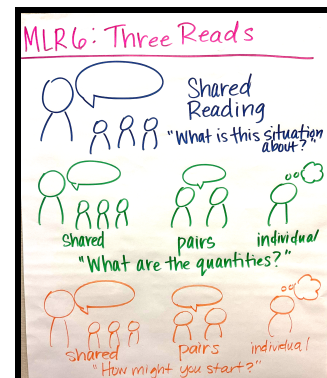
#5: Co-Craft Questions

- “To require students to use conversation skills to generate, choose (argue for the best one), and improve questions, problems, and situations as well as develop meta-awareness of the language used in mathematical questions and problems.”



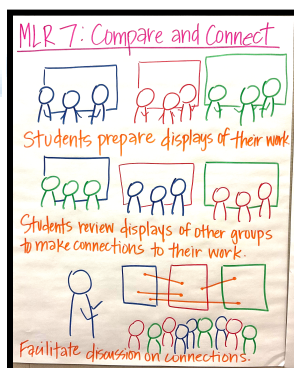
#6: Three Reads

- “To ensure that students know what they are being asked to do, create opportunities for students to reflect on the ways mathematical questions are presented, and equip students with tools used to negotiate meaning.”



#7: Compare & Connect

- “To foster students’ meta-awareness as they identify, compare, and contrast different mathematical approaches, representations, concepts, examples, and language.”

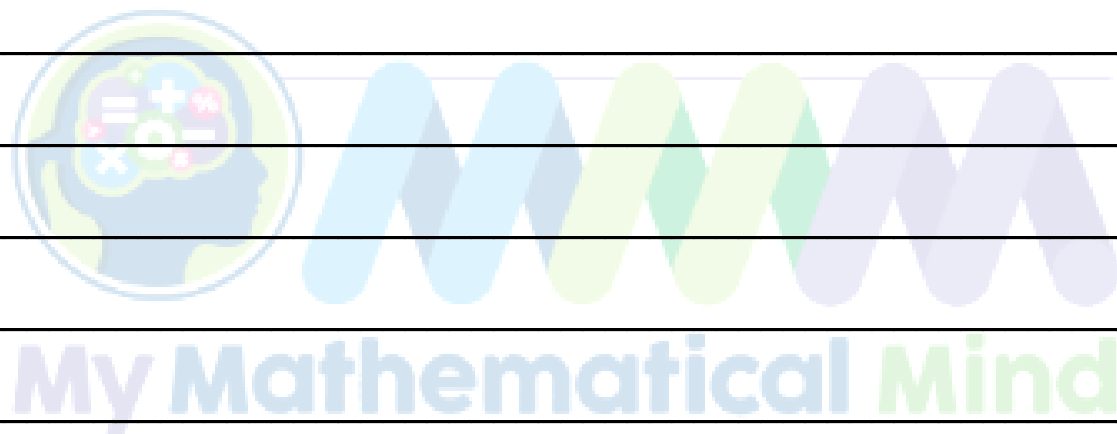


#8: Discussion Supports

- “To support rich and inclusive discussions about mathematical ideas, representations, contexts, and strategies.”



Notes



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