



BUILDING YOUR MATH CLASS COMMUNITY



CURRICULUM & COACHING
CENTER OF EXCELLENCE

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Do your students look forward to math class? As a subject with precise answers and often rigid thinking, learners often get lost along the way or dread the class time because of a lack of success. However, math shouldn't be this way. It should be fun to learn more, even when there are mistakes along the way. **Here are five ways to bring out the strengths of your scholars and make math class something to look forward to every day.**



1. Use Thinking Tasks for Scholars to “Play with the Math”

Allow multiple entry points and opportunities for scholars to “play with the math” before formalizing their learning and figure out the problem using different strategies. The decision to use an open-ended task that has multiple entry points allows our scholars opportunities to learn mathematics from conceptual understanding and promotes flexible thinking. It creates opportunities for students to change their perception about what mathematics is and what it means to do mathematics. Intentionally discuss what it looks and sounds like to do math together as a mathematical community by posing reflective

questions to students about what “Doing Math” means and what evidence they saw, heard, or experienced. As everyone enters math class with different experiences and mindsets, this approach creates opportunities for teachers and students to see strengths and amplify the joy and wonder of mathematics.

***“Student learning is greatest in classrooms where the tasks consistently encourage high-level student thinking and reasoning and least in classrooms where the tasks are routinely procedural in nature.”
(NCTM Principles to Actions)***



2. Make It About the Thinking and the Process

Yes, the correct answers are important, but if we want all students to engage in doing and thinking about mathematics, consider how you might focus on the process and the strategies that scholars bring to the table. Create a classroom culture that values thinking rather than answers. Amplify student strategies, ask for another way to solve the problem, push students to prove their thinking, value their mistakes as learning opportunities, and learn alongside them.

3. Implement the Two “V’s”

To gauge comprehension and growth, we want to use tactics to support active engagement. Ways to start are by using the two “V’s” in your classroom:

Visibly Random Trios (VRT)

With VRT, teachers create student groups of three to work at assigned tables or whiteboards on a particular assignment or activity. Make the trios visibly random, whether through playing cards, Kagan table mats, or generating a list on a screen, so that students perceive and believe the randomness. Be sure to change the trios up frequently. According to Dr. Peter Liljedahl’s research, visibly random groupings increased students’ willingness to collaborate, increased enthusiasm for mathematics learning, eliminated social barriers, increased knowledge mobility, and reduced social stress.

Vertical Non-Permanent Surfaces (VNPS)

Provide VNPS for each student or VRT, which could be whiteboards around the room, Wipebook erasable chart paper, or even shower board from your local home improvement store. There is something magical about whiteboards and



students’ willingness to engage and experiment with the mathematics at hand. It allows us to see student thinking and monitor progress so that we can provide appropriate supports and extensions. According to Dr. Peter Liljedahl’s research, students working on vertical non-permanent surfaces produced better results across almost all variables.

“How we respond to productive errors can encourage or discourage student thinking and learning... remember that how we respond to mistakes has the potential to discourage students or to help students become more confident in their ability to do mathematics. This new confidence can transform student attitudes toward learning mathematics.” (Linda Gojack, NCTM President 2012-2014)

4. Define Success for Learning Goals and for Daily Activities

Consider asking yourself, “How will I know if my students were successful today?” Once you have a picture of success in your mind, consider what you will look and listen for as you monitor student discussion and look at student work. Define exactly what success looks like early and often in the process. Lastly, what student work and ideas will you share with the class, and in what sequence?

As educators, we start with the end in mind when planning a unit, a week, and lessons. So, why not teach our scholars to begin with the end in mind? Our scholars’ goal should be to internalize this model as a process to support their executive functioning skills.

5. Believe in Your Scholars and Yourself

Teaching during the pandemic has been extremely challenging, AND, every teacher, to the best of their ability, did everything to support their students. As you enter your classrooms, make the choice to find the strengths of every scholar, for math or any other subject, and amplify their talents. When we use this type of asset- and strength-based thinking and language, we open doors for our scholars and ourselves. Remember, this is supposed to be fun!

Get Ready, Do, Done

When launching into an activity, practice, centers, etc., consider three thoughts and invite students to share their ideas:

- 1 What will it look like when I am done? How do I envision the future?
- 2 What steps do I need to take to be done? How long might each step take?
- 3 What do I need to get started?



“Language does not just describe reality. Language creates the reality it describes.” -Desmond Tutu



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REFERENCES AND RESOURCES

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[Building Thinking Classrooms Conditions for Problem Solving](#)

Liljedahl, Peter. (2016). Building Thinking Classrooms: Conditions for Problem Solving. 10.1007/978-3-319-28023-3_21.

[Cultivating Genius: An Equity Framework for Culturally and Historically Responsive Literacy](#)

Muhammad, Gholdy. (2021). Cultivating genius: An Equity Framework for Culturally and Historically Responsive Literacy. Scholastic.

[Principles to Action - National Council of Teachers of Mathematics](#)

National Council of teachers of mathematics. <https://www.nctm.org/PtA/>.

Helpful resources for your classroom: [Illustrative Mathematics](#), [Desmos](#), [YouCubed](#), [Wipebook](#)

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