



Supporting Multilingual Learners in the Math Classroom

Writing in the Math Classroom

What is it?

Writing in the math classroom refers to the practice of using written language to express mathematical reasoning, explain problem-solving processes, document solutions, and reflect on mathematical concepts.

Why is it important?

Writing can foster a deeper understanding of mathematical concepts, as students organize and explain their thoughts and reflect on their learning. Writing engages students in practices such as constructing viable arguments and supports the development of important standards from other content areas like the [WIDA](#) (World-Class Instructional Design and Assessment) standard of understanding language function and developing English language proficiency. In particular for multilingual learners, writing in the math classroom gives them an opportunity to practice language skills and increase their mastery of and confidence with a new language.



How to get Started

- **Model Writing Strategies:** Show examples of good mathematical writing and model how to write explanations and justifications. Discuss what makes these examples effective and how students can emulate them. Include images and diagrams to help students communicate their thinking. Incorporate rubrics that outline clear expectations for mathematical writing and provide constructive feedback on students' written work.
- **Math Journals:** Have students maintain math journals where they regularly write about what they've learned, questions they have, and reflections on their problem solving strategies. Let them write in their own language to begin with and then move to writing in their new language. [Here is an example](#) that you can edit for your specific task/purpose and share a copy with each student.
- **Group Work:** Use group activities where students collaborate on writing explanations or justifications for solutions. Different types of group configurations (e.g., mixed language proficiency groups, peer tutoring) can help support writing for multilingual learners. Use can also use structured [Math Language Routines](#) (MLR) such as MLR3: Clarify, Critique, Correct ([For Teachers](#), [For Students](#), [Graphic Organizer](#)) and MLR5: Co-Craft Questions & Problems ([For Teachers](#), [For Students](#), [Graphic Organizer](#))
- **Provide Writing Supports:** Provide prompts such as "Explain how you solved this problem" or "What strategies did you use and why?". Give students sentence starters tailored to the specific content.
 - Use [Always-Sometimes-Never](#) graphic organizer to evaluate and critique whether mathematical statements are always, sometimes, or never true. Use the graphic organizer to frame and assess the reasoning process as students work toward evaluating and improving a response.
 - Create and post sentence frames and starters in places accessible for every student. For example you can download [NC2ML Classroom Posters with Sentence Starters for Students](#) OR [Sentence frames to guide math talk](#).



Creating an Environment for Student Discourse

We ALL speak math

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Ideas to Ponder

- **Start Small:** Begin with short, manageable writing tasks and gradually increase complexity as students become more comfortable with writing in both their home and new languages.
- **Use Technology:** Leverage digital tools and platforms. For example, blogs, discussion boards, or collaborative documents can facilitate writing and sharing of ideas. Translation tools can be used to translate writing into various languages.
- **Collaborate with other Teachers:** Use practices that students are familiar with from other subject areas such as writing a main idea and concluding sentence, peer feedback, and using the revision process to improve writing.
- **Celebrate Writing:** Create a positive environment where students' written work is valued and celebrated. Highlight the process of refining written work and display samples of writing in various stages. Encourage students to share their writing with the class.



Questions to Consider with Colleagues

- 1 How can we integrate language objectives with math content objectives in writing tasks to focus the work for our students?
- 2 How can writing tasks be differentiated to meet the diverse language proficiency levels of multilingual learners?
- 3 How can collaborative writing activities be structured to support multilingual learners?
- 4 What types of feedback are most effective in helping multilingual learners improve their math writing skills?
- 5 What strategies can we use to incorporate students' cultural and linguistic experiences into math writing tasks?



We're developing the critical, creative and collaborative thinkers we need for our workplaces and communities.



Note: This resource is being co-designed by the NC math education community. We welcome feedback to inform its refinement at <https://forms.gle/8PBWGsvqJQzcdtCF8> Check the website (nc2ml.org/high-school-teachers) for the most up to date resources.