



## Model Discourse Skills & Provide Feedback on Student Discourse

### What is it?

Modeling discourse in the math classroom involves teachers demonstrating how to effectively communicate mathematical thinking, reasoning, and problem-solving strategies using precise language and representations. Providing feedback on student discourse involves assessing and guiding students' mathematical conversations to help them improve their ability to articulate and engage with mathematical concepts clearly and accurately.

### Why is it important?

Talking about math requires risk-taking, critical thinking, and open-mindedness. In addition, it requires that you make your thinking visible to others. When teachers model these characteristics, they support students in demonstrating how to articulate mathematical reasoning clearly. They can also help students feel comfortable asking questions and justifying their reasoning. Feedback can support reluctant speakers and multilingual learners to participate confidently in math discourse.



### How to get Started

- **Explain the Importance of Math Discourse:** Begin by explaining the importance of mathematical discourse for learning. Introduce specific discourse skills such as asking questions, explaining reasoning, and using precise mathematical language.
- **Model Through Think-Alouds:** Explaining your thinking is an important aspect of participating in math discourse. Use think-alouds to demonstrate how to verbalize your thought process, including how you interpret the problem, choose strategies, and reason through each step. Highlight key moves and explicitly point out why you are doing them. It is common for students to only want to explain their “steps” to solving a problem, rather than their thinking, reasoning, or understanding. Encourage students to go beyond “steps” to create more meaningful dialogue that promotes conceptual understanding and critical thinking.
- **Use Sentence Starters and Frames:** Provide students with sentence starters and frames to support their participation in discussions ([Here are some examples](#)). For example, phrases like “I think this because...”, “Can you explain how you got...?”, and “Another way to look at this is...” can help students structure their responses. Encourage students to try these starters to engage you in discussion about the think-aloud.



### Other Recommendations

- **Incorporate Visual Aids:** Use visual aids, such as anchor charts, diagrams, and graphic organizers to support verbal explanations. These can be particularly helpful for multilingual learners, as they provide additional context and clarity. (Read more about anchor charts and graphic organizers aligned [here](#)).



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### Other Recommendations (continued)

- **Connect to Precise Mathematical Language:** As students progress throughout the year, teachers can help their students develop formal mathematical language from informal, introductory language. Structures such as word walls ([read more here](#)) and Frayer models ([template here](#)) help students make sense of math vocabulary. Allow students to discuss math concepts using informal language first to learn the concepts. Pre-teaching words in isolation can seem confusing to students and get in the way of their mathematical understanding.
- **Facilitate Math Discourse Practice:** Create opportunities for students to practice their math discourse skills in pairs or small groups. Circulate and provide real-time feedback, reinforcing positive examples of math discourse and suggesting specific sentence starters when needed. .
- **Reflect and Adjust:** After discussions, engage the class in a reflection on what worked well and what could be improved. Encourage students to share their experiences and set goals for future discussions. Use this feedback and adjust modeling and support strategies as needed. Also, ask students to assess their math discourse using a rubric such as this [Student Discourse Self-Assessment Rubric](#).



### Ideas to Ponder

**Structures for Math Discourse:** Math discourse can take place in pairs, small groups, and whole class. Be sure to model how to share your thinking and how to engage with others thinking in each of these contexts.

**Provide Timely and Constructive Feedback:** Offer feedback promptly after student contributions to reinforce positive examples of discourse and provide guidance for improvement. Ensure that feedback is specific, actionable, and supportive, focusing on both content and communication skills.

**Differentiate Support:** Recognize that students may vary in their readiness and comfort levels with mathematical discourse. Provide differentiated supports, such as sentence starters, peer scaffolding, or additional practice opportunities to meet the needs of diverse learners. In addition, keep in mind that discourse can take on many forms, including writing / drawing / sharing technologically created representations, not just speaking.



### Questions to Consider with Colleagues

- 1 What strategies can we use to demonstrate the process of constructing mathematical arguments and explanations as well as how to engage with others' ideas?
- 2 What types of sentence stems, word banks, and other supports can we provide to help students, especially multilingual learners, engage in mathematical discourse?
- 3 How can we provide feedback that is specific, actionable, and encouraging, particularly for multilingual learners?



**Teachers help students understand how to listen to each other, ask questions and offer their own thinking.**



**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](https://nc2ml.org/high-school-teachers)) for the most up to date resources.

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