

Use and Connect: Facilitate meaningful mathematical discourse

Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments. Mathematical discourse among students is central to meaningful learning of mathematics.

Teachers

1	Anticipate student responses prior to the lesson.
2	Monitor students' work on and engagement with the tasks.
3	Select particular students to present their mathematical work.
4	Sequence students' responses in a specific order for discussion.
5	Connect different students' responses and connect the responses to key mathematical ideas.

Leinwand, S. Brahier, D., & Huinker, D. (2014). Principles to Actions: Ensuring Mathematical Success for All. Reston, VA: National Council of Teachers of Mathematics.

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What are teachers doing?

Engaging students in purposeful sharing of mathematical ideas, reasoning, and approaches, using varied representations.

Selecting and sequencing student approaches and solution strategies for whole-class analysis and discussion.

Facilitating discourse among students by positioning them as authors of ideas, who explain and defend their approaches.

Ensuring progress toward mathematical goals by making explicit connections to student approaches and reasoning.

What are students doing?

Presenting and explaining ideas, reasoning, and representations to one another in pair, small-group, and whole-class discourse.

Listening carefully to and critiquing the reasoning of peers, using examples to support or counterexamples to refute arguments.

Seeking to understand the approaches used by peers by asking clarifying questions, trying out others' strategies, and describing the approaches used by others.

Identifying how different approaches to solving tasks are the same and how they are different.