

Promoting Math Debates

Summary: When students are able to debate math, they gain a much deeper conceptual understanding. However, it can be difficult to promote effective math disagreements among elementary students. In an article for *Teaching Children Mathematics*, two university faculty members discuss strategies for having conversations about math in your classroom.

Practical Applications

The authors suggest that there are three key elements to setting up a good math debate in your classroom – a math debate meaning a discussion about a question that students commonly split on, such as “is 4×8 the same as 8×4 ?”

- *Force students to take sides.* Giving students writing prompts prior to instruction (e.g. the 4×8 question above) is a strong way to force students to articulate their current thinking. Giving the same writing prompt a day later can show growth or remaining confusion around the topic. Students should have opportunities to defend their reasoning.
- *Reveal students' misconceptions.* By deliberately choosing activities that show the error behind one side of a math debate, students can understand where their thinking fell short. An example the authors give is an activity where students are provided with a series of shapes and asked to circle the ones that are triangles, and then describe how you can tell which ones are triangles. Because many students try to find triangles visually instead of considering their geometric properties, this shows the error in that strategy.
- *Recall last year's disagreements.* When thinking about which topics to have math debates on, the authors suggest thinking about common disagreements your students have had in previous years; new teachers might also ask veteran teachers. This lets the teacher proactively address the math issues which have common misunderstandings.

The authors then note the three characteristics of a good topic for a math debate:

- *Centers on a mathematical concept (not a rule).*
- *Is accessible to all (all students share a common background knowledge)*
- *Can be debated (there are multiple solutions that could be reasonably arrived at)*

Conclusion and Citation

The teachers' role here is to both design strong math debates and then facilitate the discussion, adapting to whether there is consensus, continued confusion, or agreement of the wrong answer. Doing this well can lead students to new heights in their conceptual understanding.

Barlow, A. & McCrory, M. “Strategies for Promoting Math Disagreements.” *Teaching Children Mathematics* (May 2011), pp. 530-539. <http://tinyurl.com/3hxxkjb> (subscription only).