

Using Number Talks to Build Students' Math Reasoning

Summary: While teachers want to build their students' math reasoning skills, it can be difficult to find simple and efficient structures within the day to do so. In an article for *Teaching Children Mathematics*, University of Alabama – Birmingham professor Sherry Parrish offers the strategy of “number talks” as a useful tool to address this problem.

Practical Applications

Parrish defines a “number talk” as “five- to fifteen-minute conversations around purposefully crafted computation problems.” These whole-class discussions, which center on one mental math problem per talk, are designed to give students a chance to explore different strategies and figure out why they work and which might make more sense depending on the type of problem. An example that Parrish gives is a 4th grade class discussing how to solve the problem 16×25 . The key components of a number talk are:

- *Classroom environment and community.* Because this is a student-centered strategy where students will be offering different strategies, errors will be made. Having an environment where students feel comfortable making mistakes is key. The teacher can help here by accepting all suggestions with a blank face and modeling behavior.
- *Classroom discussions.* Students are first given time to try to solve the problem mentally on their own (with students who finish early encouraged to seek alternative strategies). Then, all answers – right or wrong – are put on the board, and the class discusses the merits of each and the strategies used to arrive there. There may be natural opportunities that arise from these talks for the teacher to have students pair off and explore different strategies or try to apply the strategies to a new problem.
- *Teacher's Role.* It is key that the teacher is a facilitator instead of an instructor, purposefully guiding the conversation and posing open-ended questions that will lead to strong discussion and resisting the urge to give the explanations.
- *Role of Mental Math.* Having students use mental math instead of pencil-and-paper forces students to think about efficiency of strategies and also to truly reckon with place value without the aid of having problems written out in a standard vertical format.
- *Purposeful Computation Problems.* As Parrish notes, “the teacher's goals and purposes for the number talk should determine the numbers and operations that are chosen.” In other words, choosing a random problem won't do – 16×25 is a strong problem because multiple strategies can be used (partial products, breaking down factors, etc.), whereas a problem like 3×49 will encourage students to use rounding strategies (e.g. $3 \times 50 - 3$). Number talks can be used for any operation, not just multiplication.

Conclusion and Citation

Number talks are quick, efficient ways to get students of any grade level thinking beyond rules and algorithms and into a space where they are applying their math reasoning skills.

Parrish, S. “Number Talks Build Numerical Reasoning.” *Teaching Children Mathematics* (Oct. 2011), pp. 198-206. <http://bit.ly/qW9EkH> (subscription only).