

## Noticing the Numbers: Students Using Computation Strategies Based on Reasoning

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Build procedural fluency from conceptual understanding Teacher and student actions	
What are <i>teachers</i> doing?	What are <i>students</i> doing?
Providing students with opportunities to use their own reasoning strategies and methods for solving problems.	Making sure that they understand and can explain the mathematical basis for the procedures that they are using.
Asking students to discuss and explain why the procedures that they are using work to solve particular problems.	Demonstrating flexible use of strategies and methods while reflecting on which procedures seem to work best for specific types of problems.
Connecting student-generated strategies and methods to more efficient procedures as appropriate.	Determining whether specific approaches generalize to a broad class of problems.
Using visual models to support students' understanding of general methods.	Striving to use procedures appropriately and efficiently.

*Principles to Actions*, National Council of Teachers of Mathematics, 2014.

### Building Fluency

#### Initial exploration and discussion of number concepts.

How does getting students to notice the numbers in Tell Me All You Can support fluency?

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What numbers and operations would you use with your own students?

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**Using informal reasoning strategies based on meanings and properties of the operations.**

How does having students compare strategies support fluency?

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How would you implement this practice with your students?

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**Intentional practice that leads to the use of general methods as tools in solving problems.**

How do you currently provide practice for students? What new ideas do you have for providing practice?

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