Because today’s kids will need more than calculators

As secondary math teachers, we know students don’t always arrive in our classrooms with strong number sense. Many can do the math but don’t know how to think through the math. They lack numeracy—the ability to think through the math logically, solve problems, and apply math outside the classroom. It’s our job to help them rely less on their calculators and more on their own number power. It’s time for Building Powerful Numeracy.

Developing numeracy in today’s middle and high school students is reflective of the Common Core State Standards mission to build “the skills that our young people need for success in college and careers.” (CCSS 2010)
Transform students into mathematical thinkers and watch as they:

- engage with problems and become more confident in their justifications.
- learn higher mathematics with more confidence and success.
- reason through math problems outside of the classroom, in the real world.

Pam Harris uses two big ideas to build numeracy in our students:

- **Teach the importance of representation.** Representing student strategies on models such as the open number line, the open array, and the ratio table promotes discussion of relationships rather than procedures.

- **Teach with problem strings.** Introduced by Catherine Twomey Fosnot and her colleagues in the *Young Mathematicians at Work* series, problem strings are sequences of related problems that help students construct numerical relationships. They encourage students to look to the numbers first before choosing a strategy, nudging them toward efficient, sophisticated strategies for computation.

Understanding numerical relationships gives students the freedom to choose a strategy, rather than being stuck with only one way to solve a problem. Using Harris’s strings and activities can empower your students to reason through problems and seek to find clever solutions. They’ll become more naturally inclined to use the strategies that make sense to them.

**Basic calculator: $3.99**

**True numeracy: Priceless**

**ABOUT THE AUTHOR**

**Pamela Weber Harris**, a former secondary mathematics teacher, is a K–12 mathematics education consultant, a T³ (Teachers Teaching with Technology) National Instructor, and a nationally known speaker. She presents at conferences and workshops throughout the U.S. on numeracy, assessment, and using technology appropriately in the mathematics classroom.