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Today's math vocabulary exposes generational divide

By [Michael Alison Chandler](#), Published: May 20

Interested in helping your child with math homework? You might need a math-English dictionary.

There's not a lot of "borrowing" in subtraction these days. Instead there's "regrouping" or "decomposing." "Reduced" fractions are now "simplified" or simply "equivalent" fractions. And let's call a "diamond" what it really is, please: a "rhombus."

As the nation strives to increase the rigor of math instruction, educators are cleaning up their math vocabulary. Gone are those friendly, metaphorical words — squares don't have "corners," they have "vertices." And we're not talking about "number sentences"; these are "equations."

The updated vocab is more technical and specific. The point is to use words that are closer to their mathematical meanings and better able to translate into higher math.

Terms long used at the secondary or graduate level have been trickling into lower grades over the years by way of [updated learning standards](#).

"We are all now speaking the same language," said Spencer Jamieson, elementary mathematics specialist for Fairfax County public schools, which is implementing tougher Virginia math standards this year.

National math standards, which have been adopted by 45 states and the District, advise educators to "attend to precision," which includes using more specific vocabulary and definitions.

Although [a new coherence](#) may be forming from grade to grade, the technically proper math being spoken in elementary schools today does not necessarily jibe with the more colloquial dialect taught a generation ago.

"It's very confusing to parents," said Linda Gojak, president of the National Council of Teachers of Mathematics. "We try to help them make sense of it."

Montgomery County elementary math teachers often send letters home to parents when starting a new unit to introduce them to the vocabulary or strategies being taught, officials said. In Fairfax, some schools organize "family math night" to share new instructional approaches.

School systems, and individual teachers, are more or less strict about the extent to which they stick to the new terms.

In Montgomery, "Borrowing has become the 'B-word,'" explained David Szybalski, a second-grade teacher at Galway Elementary in Silver Spring.

Mathematicians have been campaigning to abolish the term for decades.

"The problem I have with 'borrowing' — you know, we never give it back!" said Francis M. "Skip" Fennell, a professor at McDaniel College in Maryland and one of the advisers who helped write the common core standards.

Don't get him started on "carrying," a term often used when adding numbers. "Where are you carrying it to? The corner? The principal's office?" he said.

Fennell prefers the term "trading" because it describes the actual mathematical process of trading a 10 for 10 ones or vice versa. Other popular terms in classrooms today are "ungrouping" and "regrouping," again referring to that transfer from 10s to ones (or 10s to 100s, etc.)

Increasingly, though, the preferred words that appear throughout the common core standards are "composing" and "decomposing."

While "decomposing" has its own confusing, non-mathematical connotations, educators say the term works better throughout mathematics. Fractions can be "decomposed" or broken down; so can algebraic expressions.

The terms underscore a broader philosophical shift toward a [more thorough teaching of mathematical foundations](#), including place value and number sense — getting students more comfortable with all the ways that numbers are made up of other numbers.

The age-old trick of "borrowing a 1" while subtracting is still taught, but not until after students have had a lot of time to learn other, slower problem-solving methods that help them understand why the formula works.

At Galway Elementary, second-graders often used number charts or blocks of 10s or ones to physically "compose" and "decompose" the numbers they were given. And they often solved problems moving left to right, breaking them down into 100s, 10s and ones and solving for each.

Although they have gotten more comfortable with the numbers, the new terminology is still sometimes confusing to students, many of whom are learning English as a second language. Teacher Elise Carter came up with a hand gesture to help them understand "decompose": Put two fists together and then open them up to show 10 fingers.

Down the hall, second-grade math teacher Stephen Morina found that in addition to teaching the new words and strategies, there is still some currency to the old language, especially when translating the math into real life. While going over the answer to one problem — 248 minus 229 — he offered a snack analogy.

"If I have eight cupcakes, can I give you nine?" he asked his class.

"No!" the students said.

"But I can go next door to Mrs. Miller's house, right?" he asked. "Because she always has extra snacks when I need to borrow some."

