

# How Common Core standards are affecting elementary, middle school math classes

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KENTWOOD, MI -- In Beth Ledesma's second-grade classroom, students are looking at bar models to help them grasp basic mathematical principles, seemingly a simple idea but one that is emerging across Michigan as school districts look to adapt learning to Common Core standards.

The difference: Rather than focusing on basic memorization of long-taught equations, Ledesma's students at Explorer Elementary and those across Kentwood's elementary and middle school classes are using Singapore math concepts. The curriculum teaches children fewer concepts, but at greater depth and with the ability to transfer them to other scenarios.

Ledesma said bar models give the students a visual clue to a math question and it helps them organize the information in that problem.

“It helps them to differentiate what action they have to do, whether it’s adding or subtracting,” she said while recently teaching a lesson to students.

Kentwood switched to Math in Focus' Singapore strategy when Common Core - a controversial education principle that sets standards for students across the nation - when it became clear Michigan would join the initiative. Detractors say the core takes local control away from districts that must conform to the programs.

As of this year, the district is the lone West Michigan school system using the teaching method, but others, including Grandville, are contemplating a similar move. A consultant said 25 to 30 districts in the state have made the change and that more are expected to as Common Core demands students become better problem-solvers.

The idea developed in Singapore, where students were performing poorly or at the middle of the pack when compared to counterparts in other countries. The educational leaders there developed a new program and saw test results - and mathematical understanding - improve dramatically.

Kentwood jumped to Singapore after 20 years of using the Everyday Math curriculum when Michelle Valdez, the district's math specialist, identified the strategies within it as a way to help student achievement.

The district implemented the [Singapore math](#) last year, teaching strategies for subtraction, addition multiplication, division, fractions, ratios and even algebra. The change was immediate in elementary schools and moved through eighth-grade this year, Valdez said.

[Singapore math bar model](#) Kentwood Public Schools is the only West Michigan school district to use the Math In Focus Singapore Bar Math Model strategy. The math strategy is being eyed by Grandville Public Schools in the next 12-18 months.

“When Common Core came out, we looked at what those standards were expecting and the depth and the rigor. We realized that Everyday Math was not going to give the students what they needed,” she said.

“We started focusing more on what was in Common Core, and I started looking at research for what we could do to help our students better understand number sense, algebra and all of the areas where we were low in our scores. A strategy like using bar models was one of the pieces of research that is out there that helps with problem-solving.”

Valdez said kids are good about learning and memorizing facts and simple equations, but knowing how to apply that knowledge is a skill that many of them are lacking.

“We need to focus more in the classroom on having kids apply what they know to new situations and not just copying something they’ve seen before,” she said. “This has enough skill in it, where they not only learn the skill that’s in the math, but they learn why it works and why they’re doing it.

“You have to do a lot of justifying, a lot of why they’re doing it and how they know that they’re right. Once they get those skills down, then the expectation is that they can apply it to a completely new situation or a new word problem.

The program does not reach the high school level except occasionally at Crossroads Alternative High School because there is not yet a series for secondary classes, according to Valdez.

“We’re really honing in on what the standards are and developing our own units (at that point),” she said. “When our kids get to Algebra 1 they’ll be in really good shape.”

While Kentwood is only in its second year of the Singapore math, educators say they are already seeing an improvement in students’ skills from last year.

“We’ve seen a lot of positive feedback from teachers because they’re able to take their students a lot further this year,” Valdez said. “We are very optimistic that this is going to be a big improvement for our school district.”

Carrie Robeson, a consultant with Math in Focus, recently visited Kentwood teachers for additional training in the bar model strategy and explained its advantage to more traditional methods.

“This correlates very nicely with what Common Core is expecting of students now,” she said. “It is our job to create thinkers and problem solvers and have students apply that knowledge, not just calculate anymore.”

And that’s part of the reason Grandville administrators are looking to change the district’s program within the next 12 to 18 months, Assistant Superintendent Scott Merkel said. Singapore math is one of the methods that the district would consider piloting.

“Math is a priority for us as it is with everyone,” he said. “We’ve had a lot of professional development focusing on shifting how to teach students about problem-solving and the perseverance of solving math problems.”

For now, Grandville schools plans to stick with its current math program and will switch resources when its budget allows, Merkel said.

“This program has the focus and coherence to developing a math idea to mastery,” Valdez said of the Singapore model. “Every new math concept should be taught at a concrete level first, then at a pictorial level and then at an abstract level. So these bar models are in that picture level – it gives them a visualization of a word problem.”

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