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Singapore Math Explained To The Community

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Madison Elementary School teachers Gail Crone (L) and Paula Hunter (R) explain Thursday how 'model drawing' and 'number bonds' are used in second- and third-grade math classes. Photo by David Slone, Times-Union

Singapore Math is the math curriculum Warsaw Community Schools has adopted for elementary schools this year.

Thursday night, Madison Elementary School hosted a Family Math Night to give parents some insight into the new curriculum.

According to information provided at the event, Singapore has led the world in math mastery for more than a decade. Its students become competent and proficient mathematicians at very early ages.

Singapore Math revolves around several key number-sense strategies. Those include building number sense through part-whole thinking, understanding place value and breaking numbers into decomposed parts or friendlier numbers.

When it comes to word problems, Singapore Math relies on model drawing, which uses units to visually represent a word problem. Students learn to visualize what a word problem is saying so they can understand the meaning and how to solve the problem.

The third main component is mental math. It teaches students to calculate in their heads without use of paper and pencil. Students still need to commit some facts of memory, but mental math teaches doing calculations using strategies that don't require pencil and paper.

In Singapore Math, the strategies are layered upon one another. Each strategy is a foundation for the next.

WCS mathematics coach Lorinda Kline told parents a lot of the new program Warsaw is using uses numbers sense. She said teachers put in a lot of time in Singapore Math to "be on the forefront of these new ideas." With the math program there's a lot of new terminology, she said.

Kline said the curriculum was changed for many reasons. Teachers were looking for curriculum that would allow WCS to grow great mathematicians. Teachers didn't want learning to become stagnant.

Standards in the state and country are increasing. Indiana is one of the top four or five states in its standards. However, as the country moves closer to a common core of standards, Warsaw doesn't want to be left behind, she said.

"We're really working hard to become the education capitol," Kline said.

After Kline's remarks, those in attendance were invited to attend two of the three 15-minute sessions to learn more. For kindergarten and first grade, parents could learn about number bonds and place value. For second and third grade, there was a session on model drawing and number bonds. The third session was on model drawing.

Teacher Gail Crone showed how second-graders learn about parts and wholes. For example, if the number 4 was presented, what solutions would add up to that number. The 4 was in one bubble, with the numbers that add up to it in additional bubbles.

"It's just a really different way of learning addition and subtraction," Crone said.

Story problems were the example teacher Paula Hunter used for teaching third-graders.

When given a story problem, students put a triangle over the numbers. They circle the word that they're talking about, and underline the question. They then make a bar, label it the thing they're talking about and divide into equal parts. They then figure out how many of those equal parts solve the question. They write their response in a complete sentence.

Last year on ISTEP, Hunter said students had difficulty with the story problems. Hunter said with story problems, addition seems to come easy, but students often get confused with subtraction.

In the fourth- and fifth-grade session, parents learned the eight steps to model drawing. It starts with reading the entire problem, then identifying the who and what. Then drawing a unit bar to model each variable, placing the question marks to demonstrate unknown values, adjusting the unit bars to match the information in the problem, computing and solving the problem, and concluding by writing a complete sentence to answer the question.

According to a handout about the philosophy of model drawing, "Problem solving is one of the key components of the curriculum. The model drawing approach takes students from the concrete stage to the abstract stage through an intermediary pictorial stage. Students create bars and break them down into 'units.' Students learn to use this strategy in the primary grades and continue with it through the program.

"Although there are many ways to solve word problems, model drawing provides students with problem-solving strategies that can be carried out as they progress through school."

For more information, some helpful links suggested include:

www.weplaymath.blogspot.com

www.thinkingblocks.com

www.thesingaporemaths.com

http://www-k6.thinkcentral.com

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