


What's The Big Deal about Singapore Math?

 web.archive.org/web/20151105070949/http://www.smartparenting.com.ph/kids/preschooler/what-s-the-big-deal-about-singapore-math/page/2

The Singapore method of math instruction has been making waves among parents, teachers, schools and the public in general. But what is it really all about? Is there basis behind all the hoopla? **Ms. Virgie Gayda Esteves**, the middle school math subject area coordinator of the Ateneo Grade School where Singapore Math has been adapted into the curriculum for the last six years now, gives us a crash course.

“At its core, Singapore math is just like any other math instruction method,” explains Esteves. “However, the Institute of Education of Singapore really studied how to teach math, such that the pedagogy and theory of math are really integrated.” This incorporation of teaching methods as it relates to pure and applied math follows a philosophy called the CPA Approach – Concrete to Pictorial to Abstract. “Children have to understand the theories concretely,” she continues. “Their learning is transformed into pictorial representations, drawings and models. These also aid students in solving abstract, complex problems like algebra.”

So how does Singapore Math differ from the way math is usually taught?

Spiral curriculum – The usual system for primary math classes involves going back to the basics. Children from Grade 2 get refresher lessons on what they picked up in Grade 1, Grade 3 kids go back to the subjects they learned in Grade 2 and so on. Traditional educators deem this drilling necessary in order to eventually master rudimentary skills such as the multiplication table. “With Singapore Math, we don't rely on the ‘drill and kill method’ – we don't repeat the lessons we taught in previous years,” clarifies Esteves. “It's a spiral system. Children are expected to master the subject they are taught in their specific grade.”

A Glimpse of the Singapore Math Curriculum by Coverage

Grade 1 – addition and subtraction

Grade 2 – multiplication and division facts

Grade 3 – mastering multiplication with certain digits (multiples of 2, 3, 10, etc.) Grade 4 – coverage of multiplication by the other digits (6, 7, 8), two-digit by two-digit multiplication and division

Grade 5 - three-digit by two-digit and three-digit multiplication and division

Grade 6 - fractions, whole number applications, decimals

In the above example, Esteves notes that at Grade 6, students are actually encouraged to use calculators. “At that level, we as teachers are more interested in finding out whether the thought processes of the kids we teach are logical,” she states. “This system makes teaching the kids less time consuming; it’s more efficient. We focus on getting them to learn new things without having to go back to what they took up in Grade 2.”

Visual appeal with a purpose – Old-fashioned math textbooks are thick, cumbersome, ponderous books written with all the thrill and excitement of a phone directory. “Singapore Math textbooks are slim, very colorful and have lots of illustrations,” reveals Esteves. “It’s to make the ideas and symbols stand out, it’s easier to understand the theories and make sense of the logic.” Visual and tactile aids such as bars, models and real world examples done with coins and rulers give a more tangible and concrete reference point for students to understand, as compared to arcane terms such as least common denominator, complex fractions or transposition. Children learn and apply these complex ideas through Singapore Math – they just don’t use fancy words for them.

Interestingly enough, word problems are a popular practice method in Singapore Math; it gives students greater resiliency in abstract and analytical thinking, as compared to the more common method of formula memorization.

Encourages variable thinking – “Singapore Math is also about the theory of variability,” she divulges. “You have to represent a concept using any number of tools such as popsicle sticks, beads, pebbles - you can use those as manipulatives or teaching materials that the kids can use or work on.” This makes children more resourceful as they are exposed to more real-world examples on how to apply math to everyday life. “When we discuss a solution to a problem in class, we’re not bound by a single solution to a problem. We encourage the students to think out of the box, to come up with creative ways to solve an equation. It’s more of a life skill that you are giving to them - you are exposing them to the value of being able to attack a problem through different ways, to show our pupils that there is more than one way to arrive at an answer

“We’re not afraid to let our students struggle with a problem, and you can see that they enjoy it,” explains Esteves. “Before, we were so reluctant to give them complex problems. Now, our kids see math as fun. The anxiety of math is not as bad as it used to be anymore.”

Teacher and parent empowerment – Educators are more challenged by Singapore Math – in a good way. “The methods we use are so exciting that the teachers become problem solvers themselves,” she says of her colleagues. “There is more enthusiasm, articulation is more meaningful, we engage ourselves in it, as compared to just having idle chitchat in the teachers lounge during breaks. Singapore Math has also gotten more of our teachers taking a masters degree in math education.”

Many parents are also encouraged by the techniques of Singapore Math. “I get many parents telling me, ‘Oh, how I wish we had this when we were growing up! I would’ve understood math better.’” As a result, more parents and kids are learning Singapore Math together.

Positive results – “You can give algebra to grade 4 students without realizing that they will be learning algebra!” she exclaims. “There has been a significant improvement in terms of the kids’ problem solving skills, comparing our results with our academic counterparts in Asia. The grades of kids have been going up, we have fewer students failing math, and fewer in the deliberation list (troubled kids).”

“In the end, you really want your students to learn the whys and hows of it all, a proper balance of both,” concludes Esteves. “Your learning has to have a purpose.”

Photo from blog.chron.com