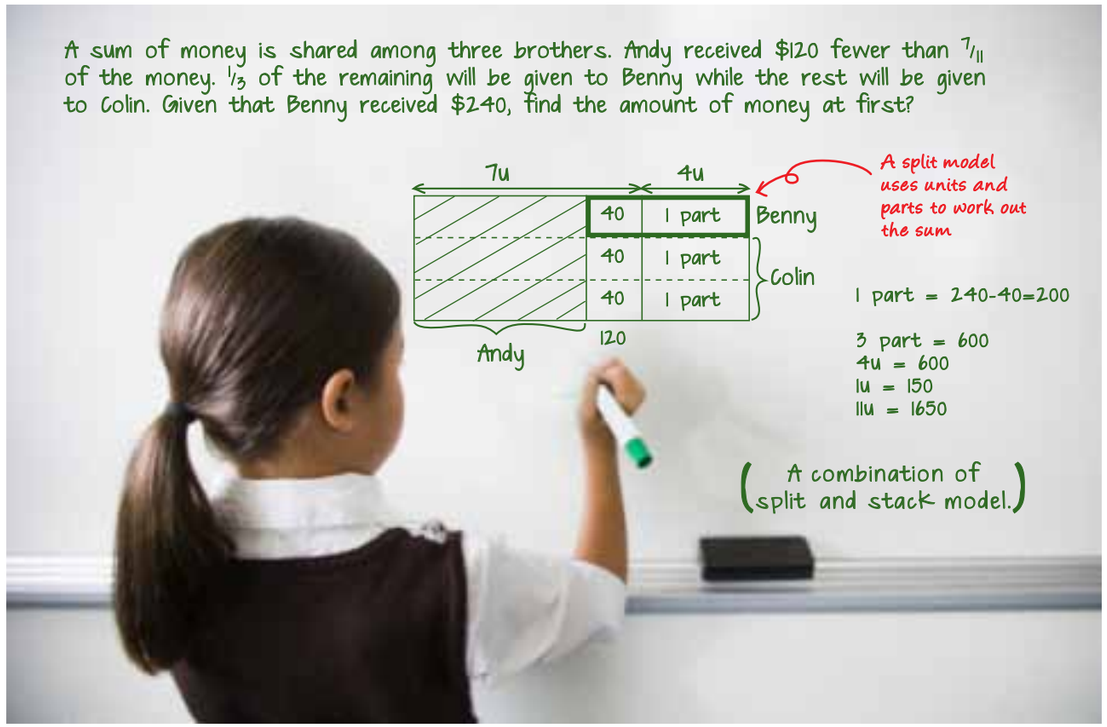


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# See it clearly, solve it fast

**Teach your child to think in new dimensions when using models to solve Maths problems with Sunny Tan's new book, *The Model Approach to Problem-solving.***

Sometime ago, my friend Siew* lamented on some of the Maths problems being presented to her daughter and classmates, to solve.

"They have scenarios of cows, chickens, ducks, pigs and what not on a farm and then they ask you how many legs they have all together, or how many ducks you could tell there were," she recalled. "I mean, why would anyone be interested to know about the number of all those legs on a farm?"

Laughter aside, we then experimented with the model method which was at that time just emerging in the education scene in Singapore and creating waves amongst schools and parents.

Working with primary schoolteachers to research on the topic for our work, the intriguing legs issue was over-ridden by the joy of having been able to solve such problems more easily than if we were to use the traditional algebra method.

## New dimensions to the model

The model method was probably one of the biggest breakthroughs in the way how children learn Mathematics in primary schools here. Suddenly, we were able to visualise the Mathematical situation and place numbers and concepts where they fit.

In very recent years, the use of heuristics has taken Maths to further dimensions, naturally tapping on how a human mind logically and intuitively thinks.

We chat to Mr Sunny Tan, Principal Trainer of mathsHeuristics™ about the function of heuristics and his new handbook for parents, *Model Approach to Problem-solving (MAPS):*

**SC: Sunny, you're NIE-trained and have taught in schools in Singapore. What have you noticed about Mathematics teaching and learning?**

**ST:** While being a teacher with Singapore's Ministry of Education, I noticed how the current primary school Mathematics syllabus – different from what today's parents and teachers were raised on – left many stumped.

While Mathematical Heuristics has been incorporated into the Mathematics syllabus, teachers are not specifically trained to teach Mathematical Heuristics. Worse still, it is difficult to single out, learn and teach Mathematical Heuristics.

**SC: For parents looking for improving their children's performance in Maths, is tuition then the solution?**

**ST:** Many parents depend on tuition agencies or private tutors for their children's Mathematics performance, not realising that most tutors were also raised on the same Mathematics syllabus as themselves, one that is sans Mathematical Heuristics.

The more hands-on parents rely on Mathematics syllabus guidebooks to equip themselves to personally guide their children. However, there are no books on the market that specifically teaches Mathematical Heuristics. Where a guidebook comes close to it, its title merely allude to Mathematical strategies (not Mathematical Heuristics), making such books difficult to identify. Once acquired, parents often find themselves second guessing the author's explanations, and how the author got from one step to another.

With the aim of closing this gap, I emerged with a technique that simplifies the application of Mathematical Heuristics. With that as a spring board, the modular mathsHeuristics workshops were established. And most recently, the **Mastering Heuristics Series** – a series of handbooks for discerning parents – were published.

This series offers two perspectives:

* **Concepts in action** – to show how easy and efficient Mathematical Heuristics is when it is used in solving challenging mathematical questions.
* **Concepts being applied** – to systematically show every step involved in applying each Mathematical Heuristics concept.

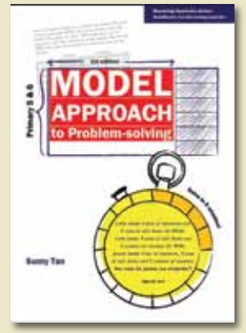
**SC: You have published the well-received *Unit Transfer Method in Solving Challenging Upper Primary Mathematical Problems*. Tell us about your new book, *Model Approach to Problem Solving.***

**ST:** The ability to visualise a problem goes a long way to helping to solve it. *The Model Approach to Problem-solving* was borne out of this fact. *Model Approach to Problem-solving (MAPS)* is about using drawings (models) to "see" the problem for what it is.

Heuristics can be applied to models, as well. The book goes beyond conventional models and helps you learn highly-efficient techniques like Stack Model and Split Model to solve challenging problems fast.

## "I want to use heuristics to teach my child how to solve Maths problems"

**A parent shares her anxiety about helping her children with Mathematics and her sneak peek at Sunny Tan's new book, *Model Approach to Problem Solving.***




I have 4 kids, ranging from P4 to pre-nursery.

I am good at Maths. I didn't believe primary school Maths could ever be that tough until I helped my oldest girl in Maths. Then I realised Maths was no longer what it used to be when I was in primary school. I can't solve MANY of the questions. This shocked me. And I am concerned as to how my children will cope.

As I understand it, Maths (with heuristics incorporated) is now about training kids to think logically. But how do you train a child to think logically when they haven't experienced enough of life? Particularly when there are so many complications within each Maths question that is set?

I see heuristics as necessary logic in Maths and necessary logic that will add to a child's life skills. I can't wait for my children to learn these skills. Yet, I am also apprehensive because I worry they are too young to absorb these abstract concepts.

I have taken a look at Sunny Tan's new book. Sunny has taken pains to explain everything step-by-step, so that parents (and even children) can follow the solution from start to finish. Frankly, I have yet to come across any book out there that actually explains the use of heuristics in such detail.

Also, it points out areas where kids could get confused. This way, if parents use the book to teach their kids, they can pre-empt where kids make mistakes and explain those areas to the kids, even before they stumble in those areas!

**– Karen Tan, a parent who attended Sunny Tan's mathsHeuristics workshops.**

**SC: These days, parents are familiar with the model approach. Could you tell us how using the Stack model or Split model (as featured in your book) helps parents and their child solve the problem more efficiently?**

**ST:** The Stack model makes use of a highly-efficient, two-dimensional visual technique.

A conventional model uses a one-dimension visualisation, the x-axis. A stack model uses a two-dimensional x-axis and y-axis(see example on the right). The Split model makes use of the systematic and yet logical approach of using units and parts model, with the help of tabulation. SC

## About Sunny Tan

NIE-trained Sunny Tan has taught primary and secondary school Maths in various streams for more than 10 years. He currently trains students in the application of various heuristics concepts, with special focus on students taking their PSLE. He also conducts heuristics workshops for parents and educators.

## A conventional model versus a stack model