

## Meshes CRISS Principles and Strategies into the Mathematics Classroom —With Great Results!

By Grant Young

### Background

I am a freshly certified CRISS Trainer starting my fifth year as a high school mathematics teacher. This is my third career. Rest assured, teaching today is different from math instruction 40 years ago. When my principal encouraged the staff to try out some new strategies to further our quest for a state grade of “A,” I decided to focus on CRISS Principles and strategies with which I was least familiar. I chose two focus areas: metacognition and note taking (Chapters 1 and 6 in the Project CRISS manual, 3<sup>rd</sup> edition).

### Metacognition



It was clear that very few of my students understood the concept of metacognition so, rather than trying to explain it, I decided to try something I learned in my second Level I training. One of our trainers, Lucy Rom, shared a story about a teacher who had used a “Learning Line” to help her and her students assess where they were in the learning process. In an attempt to recreate it, I printed the numbers 1 through 5 above my whiteboard in the front of the room. Under each number, I added a description that would help the students rate their understanding. It looked like this:

1 ▼  
NO IDEA

2 ▼  
A LITTLE

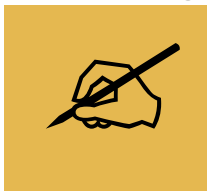
3 ▼  
MAYBE

4 ▼  
ALMOST

5 ▼  
GOT IT! (ready to test)

We discussed the fact that the ratings were not concrete and that one person’s “maybe” could be another one’s “almost.” I tried to help them understand that what was important was taking the time to think about their learning and to know when they were moving up on the chart. I required they record the rating on their notes each day and on each homework assignment. As I taught, I occasionally asked, “Do we still have any 1’s?” or “How are we doing?” to which the students responded by raising the appropriate number of fingers. (I know what you might be thinking, but I never saw anything but index fingers!) This helped me determine when it was time for a quiz. “High fives” took on a whole new meaning in class, and it was exciting for us all to see them. Also, this metacognitive check alerted me when I needed to do more review, a better explanation, or move on to new strategies.

### Note Taking



We studied, reviewed, and practiced numerous ways to take notes and how to study from them using various strategies, including Two-Column Notes (*Main Idea-Detail* and *Problem-Solution*), charts (*Content Frames* and *Story Plans*), and diagrams (*Concept Maps* and *Comparison Organizers*); focusing on the need for consistent organization.

I suggested keeping things in date order in their notebooks and tabbing major areas, such as daily notes, tests/quizzes, and vocabulary. In order to ensure that students were organized and getting the main concepts in writing, we had regular open notebook quizzes. A couple of sample questions were, “What was the lesson objective on April 3<sup>rd</sup>?” and “What was the correct answer to problem 10 on the homework from May 10<sup>th</sup>?” These quizzes tested their ability to take organized notes, rather than their mathematics knowledge, but I did throw in a few questions that required thinking and problem solving to ensure their notes were not simply copied. For some lower value quizzes, I had students swap notebooks with a partner so they could see how others were recording information, not to mention a little bit of healthy peer pressure on those not into note taking. Needless to say, the amount of writing increased significantly after the first “swap” quiz!

### Results

While most academic studies are hard to assess, the dramatic change in my results were hard to dismiss. I compared

student grade averages and the Florida Comprehensive Achievement Test (FCAT) results from 2006-07 (when I taught my traditional way) to 2007-08 (when I tried the new strategies). The average grades in all my Algebra 1 and Algebra 2 classes increased by about 10 points (a full letter grade). In 2006-07 about 25 of my 9<sup>th</sup> grade Algebra 1 students and four of my 10/11<sup>th</sup> grade Algebra 2 students did not score high enough to pass the FCAT (out of approximately 140 students, overall). This year, I was proud to have only three Algebra 1 students who did not pass and no Algebra 2 students. Only two of the 130 students scored below the “proficient” level. I had twelve students who had to repeat the course two years ago and only three this past year. The best news is that our school has moved from a “D” to a “B” state grade in the past two years as the result of more and more teachers and students using proven concepts and strategies.



**About the Author:** Grant Young graduated from Pasco High School in Dade City, Florida, (where he now teaches) in 1967. He was appointed to the US Military Academy at West Point where he received his Bachelor of Science degree in Engineering. Grant completed his Masters in Business at Albany State University in 1983. After 35 years as an industrial engineer, a business manager and executive in the paper and chemical manufacturing industry, and as a process improvement consultant, in 2002 Grant became a high school mathematics teacher. He recently became a CRISS District Trainer and is looking forward to facilitating his first Level I Training this fall.

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