CASIO

School: Valley Middle School
Location: Oakland, NJ
Math Coordinator: John Neral
Technology: Casio FX-9750G Plus, FX-300MS, & FX-300ES

Summary: **Hear how this math coordinator had his first calculator purchase proposal rejected due to budgetary constraints and was still able to equip all of his students with Casio fx-300MS scientific calculators and fx-9750G Plus graphing calculators.**

Who Am I?

My name is John Neral. I have worked as a mathematics teacher and coordinator for over ten years and I am currently teaching math and working as the math coordinator at Valley Middle School in Oakland, NJ. I balance my day between teaching four classes and managing the needs of our department. My duties include: providing the overall staff support necessary for professional enrichment, following our district's specific mathematics curriculum, incorporating appropriate technology use into lessons, and making sure we are prepared for the statewide exams in mathematics. It is a challenging position and one that requires constant attention and vision.

My Calculator Experience

I have been using calculators – graphing and scientific – in the classroom ever since I started teaching. Several years ago, when I took on the math coordinator responsibilities, one of my first goals was to drastically improve the technology program within our mathematics courses. At that time, we had approximately 40 TI-83 Plus graphing calculators and 100 TI-34 scientific calculators to accommodate over 550 students at our middle school. In addition to this accessibility challenge, the staff was strongly divided between "traditional" philosophies (instruction meant that calculators were not essential) and technology philosophies (integrating technology into instruction was paramount).

Addressing the Calculator Accessibility Challenge

If we were to truly have an instructional program that integrated technology, first we needed to make sure that we had enough technology for every student. This did not mean technology for use in the classroom. It meant technology that could be used by every student in the classroom, at home for homework assignments, and on our state exams. More specifically, it meant a scientific calculator for each student in all of our classes and a graphing calculator for each student in our Algebra and Geometry classes.

Since we had always used calculators from Texas Instruments that is where I looked first. I submitted a proposal to my Principal that included new TI-34 scientific calculators and new TI-83 Plus graphing calculators. The total was over $10,000. Neither my Principal, nor my district coordinator, for that matter, had ever seen such an aggressive calculator proposal. While they were pleased to see the amount of thought and work that went into the proposal, they were unable to fund the request due to budgetary constraints and suggested that I explore other options. As a result, we continued to work with what we had and endured another year using the same technology and program that was already in place.

Despite this initial setback, I was not discouraged. I started to investigate other calculators and calculator manufacturers. That is when I first became aware of the Casio fx-9750G Plus graphing calculator. While I was immediately attracted to its price, I thought, "How could this graphing calculator perform all of the necessary functions for half of the cost of the TI-83 Plus?" I contacted Casio and was able to borrow one for evaluation. Here's what I found:

- I was able to graph a function very easily, without having to consult the instruction manual.
- I was able to simply navigate around the calculator using the icon-based menu system.
- I was able to easily use the on-screen commands within each application to perform the calculations.
- Most importantly, I found that I could do everything I needed to do in my classroom (the same things I did on the TI-83 Plus) on a daily basis.

This was great for me, but I thought, based on my calculator experience, that the process was easier for me than it would be for my students. I decided to see how some students would react and, more importantly, interact with the calculator. Here's what they found:

- They were able to explore, engage, and interact with the fx-9750G Plus very easily and quickly.
- They said the icon-based menu system was easy to use and reminded them of the icons on their computer.
- They were able to perform simple matrix calculations.
- They were able to graph various functions and find points of interest for those functions with a few simple keystrokes.
- After only a few days, they found it easier to use than the TI-83 Plus.

That was enough for me. The technology seemed easier to use, we didn't sacrifice any of the functionality we needed for classes, and it was significantly less expensive. Why wouldn't we use it? I put together a new proposal, consulted with my department and administration, and we all decided to make the switch and replace our TI-83 Plus graphing calculators with the Casio fx-9750G Plus. My proposal was accepted and we saved over $4,000!

Note: We went through a similar exercise comparing the TI-34 scientific calculator to the Casio fx-300MS and made the same decision to switch to Casio.

> ***Student Observation:*** *While we provide calculators for students at the school, I am fortunate to work in a district where a large number of the students are able to purchase their own calculators. Because our Algebra program relies on graphing technology, I showed the students both the Casio fx-9750G Plus and the TI-83 Plus. I told them that I would be using the fx-9750g Plus and mentioned how both models had the same basic functionality but that the Casio was almost half the price of TI. As a result, the majority of our students used a Casio fx-9750 but, some, because of "tradition" (their older brother or sister had a TI), purchased the TI-83 Plus. As the year progressed, I noticed that even the students using the TI started to switch to the Casio. In fact, on one particular day, I watched a student put her TI-83 Plus away and move her chair next to someone using the Casio fx-9750g Plus. When I asked her why, she said, "I just didn't want to do all of those extra steps in order to get an answer on my calculator."*

Addressing the Technology Philosophy Challenge

While we were addressing the challenge of equipping all of our students with calculators we were also addressing the challenge of getting all department members to embrace the appropriate use of calculators in the classroom.

I quickly realized that in order for any technology initiative to work, I needed to have the entire staff on-board and supportive of the program. This was easy, once everyone accepted the fact that the NCTM standards, our state mathematics standards, and our state exam for mathematics all advocate the appropriate use of technology in the classroom. We all had a mandate, and most had a personal belief, to follow!

At this point, most of the teachers in the department had some experience with TI calculators, but this was their first exposure to Casio. Despite this, we found the transition to be relatively easy as we began a series of professional development workshops to aid in the design of lessons that used calculator technology to enhance problem-solving scenarios. Everyone adapted pretty quickly by attending these sessions and other professional development and calculator trainings. I was very impressed with the way our department members transitioned in such a short time.

Casio Support

Casio helped us tremendously during our transition by providing workbooks, materials, and free training to help get us started. They continue to support our efforts in a number of ways:

Workbooks & Supplemental Materials: Casio provides a large number of workbooks and activities for us to use in our classroom. Some are available for free and others for a nominal fee, but all are wonderful for helping integrate Casio calculator technology in the classroom.

Programs for FREE Classroom Technology: Through Casio's Educator Rewards Program and their Free Overhead Program, my district has benefited from almost $3,000 of free technology. When you purchase Casio educational technology you accumulate points that can be redeemed for additional products.

Where Do We Go From Here

After making the switch, several years ago, to Casio calculators, I find that they are easier to use, have all the functionality we need for our classes, and engage the students in a way that is not possible without technology.

We have also recently switched to Casio's newest scientific calculator – the fx-300ES – with a Natural Textbook Display for our all of our middle school courses.

All of that and, in all cases, the Casio models are less expensive than the comparable TI models.

For More Information About:

Casio Graphing & Scientific Calculators www.casioeducation.com
800-582-2763