



**Maria Garcia introduces Christian Amdor to the animated penguin that will help him learn fractions, proportions and equations.**

For the past two years, more than 80 percent of Garcia's students at Lincoln Elementary School scored at "proficient" or "advanced" in math, which is considered outstanding since nearly all of them are English language learners. She was honored by the MIND Institute last year for her excellent implementation of the program.

Garcia recently became a resource teacher, but she still works with other K-5 teachers at her school site on Math + Music, and plans to use it with some of her special education students in the future.

"One of the most important benefits is that every child can learn math at his or her own pace," says Garcia. "Some kids can go faster than others and don't have to wait for the rest of the students to catch up. They can really challenge themselves."

"Teachers are also challenged," she adds, "because the program sometimes forces them to teach very advanced concepts, since the pace is accelerated." Over the past three years, math scores in grades 2-5 have been steadily increasing at a rate of 10 to 15 percent per year. Teachers say the program's ability to analyze data and enable teachers to target areas of weakness for additional classroom instruction has been tremendously beneficial.

On a recent visit to Christina Sullivan's second-grade classroom, Garcia helped students get started with the program on computers. Soon the majority of students were off and running alongside JiJi the penguin, an animated character that teaches the students about fractions, proportions and equations in two-dimensional games that are grade-level appropriate and based on the California state standards. Afterward, students went next door for keyboard training with the school's part-time music instructor.

Garcia says it's a welcome change from "drill and kill" instruction that students typically find boring. Even students with attention deficit disorder are able to focus on the program for long periods of time. In addition to teaching students math skills, she says, it encourages them to think and plan ahead.

The best part, says Garcia, is that to the students, it's anything but work.

## Music trains the mind to see math's patterns

When the math scores in Maria Garcia's second-grade classroom skyrocketed a few years ago, she shared the acclaim with a computerized penguin named "JiJi" and musical keyboards that her students played a few times a week.

Both are components of the Math + Music Program created by the MIND Institute in Costa Mesa, which combines computer math lessons with musical keyboard training. While scores of schools throughout Southern California have found success in raising math scores with the program, nobody has been more successful than Garcia, a member of the Santa Ana Educators Association.

The late Gordon Shaw, a physicist and member of the founding faculty at UC Irvine, co-founded the Music Intelligence Neural Development (MIND) Institute, which developed a curriculum using computer programs and piano training to improve mathematics performance. Shaw was a co-discoverer of the "Mozart Effect," which proved that listening to a piano sonata by the composer enhanced spatial-temporal performance of college students. The theory of the MIND Institute is that when a child plays the piano and reads sheet music, it enhances their ability to see patterns in space and time and trains the brain to do math.