

# *A Note from the Author*

One day while substitute teaching a middle-school mathematics class in Daly City, California, I encountered the ultimately uncontrollable classroom. With one week of classroom experience under my belt and no teacher training, I wondered, what could I do to deal with this chaos? What might possibly get through to these kids? Many of my students viewed mathematics as dull, difficult, and boring—something to be avoided at all costs. However, I also found these same students glued to their CD players for hours each day—they held music as their greatest ally and the ultimate expression of their identity. Intrigued, I ran home at lunch to get my programmable electronic drum machine. I decided to try to make some mathematical sense out of what was already such a big part of my students' world: music. I found it worked.

That day in Daly City stuck with me, and clearly I wasn't alone in my thinking. In the years that followed I noticed that people often commented on how mathematical music is. When I looked for more information on the topic, I found volumes of literature on the music and mathematics connection. I discovered that this connection has fascinated great thinkers and entire cultures for millennia, starting in recorded history with the Pythagoreans. But I also discovered that the music and mathematics connection was all but absent from today's school curricula. Was this an oversight on the part of educators? When I reflected on the connection between music and mathematics, the educational opportunities it presented were impossible to deny. Music seemed like a key for reaching students in mathematics. My inspiration was sparked.

Too much of what I love about mathematics is left untouched in classrooms. Rarely are students encouraged to wonder about the role mathematics plays in the larger contexts of nature, culture, and philosophy. Too often the experience of learning mathematics is restricted to that of rote memory and calculation. Thus it is no wonder that mathematics appears irrelevant to many students—ways for them to apply meaning and imagination to what they learn are scarcely explored. Student failures in mathematics are today at crisis levels. Is this a coincidence? Hardly. I became further inspired to improve mathematics education.

This book is the result of that inspiration and much thought, research, development, and testing in the classroom. Though it merely scratches the surface of how the music and mathematics connection can be used in the classroom, it is my hope that it will help to expand the way you and your students think about teaching and learning mathematics.

Most important, it is your excitement and inspiration that will translate to students. The most advanced curriculum and technology is no match for the passion of teachers sharing what it is about mathematics that they love and teaching what it is about mathematics that inspires the imagination.