



All Aboard, The Music and Math Connection[™]

Integrating Music and Mathematics for Academic Achievement

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All Aboard, The Music and Math Connection[™]

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All Aboard, The Music and Math Connection™

About All Aboard

Our effort began with a national research project funded by the Department of Education to investigate interdisciplinary programs in several recognized leadership schools throughout the U.S. Co-founder of *All Aboard*, Dr. James Faulconer was part of a team of professors who traveled to schools to interview teachers, administrators, and parents. The team attended classes and observed teacher-planning sessions.

Throughout this process, it became very clear that many professionals recognized the importance of integrating the arts in education. However, the specifics of that implementation left a lot to be desired for the teachers. They were the ones who had to go beyond the theoretical and philosophical discussions, and actually create the classroom activities, research available resources, and develop lesson plans tailored for the children in their classes.

One of the most puzzling questions from the teachers was how to integrate math and music. This was especially true working with children too young for the obvious arithmetical relationship of fractions to musical notation.

In the mid-1990s, Dr. Faulconer recruited a group of outstanding educators and professional business leaders to address this important issue. The team created a meaningful curriculum for grades 1-6 using MIDI technology where keyboards and guitars are used to explore the learning process. The goal was to help children to discover how music works, then relate that information to other subjects. That product is called *MIDI for Kids (MfK)* and has served over 10,000 children throughout the central U.S. *MfK* remains a popular component of many schools in the mid-western region of the U.S. Through additional research funding, a supplementary product was developed called *Music + Math X MIDI*, a set of lessons addressing particular math concepts as explored through music for grades 3-6.

Our mission is to change American Education by helping children develop a love for how the world is organized, how it sounds, how it looks, and how all those concepts relate to each other.

In the early 2000, the team turned its attention to the pressing issue of prekindergarten and kindergarten interdisciplinary education. Research and classroom implementation tests helped hone a product that now exists as *All Aboard, the Music and Math Connection™*. This two-year curriculum uses the wonderful organizational qualities of music to explore similar organizational features of math. Through this insightful methodology, *All Aboard* is illuminating both subjects *and* helping children to develop a positive attitude toward learning “the hard subjects.”



Our Unique Background and Perspective on Education

Background

Our team has unique experience to focus on stimulating the minds of young children. Our educational preparation ranges from doctorates in music theory, music performance, math education, and instructional design to early childhood development specialists. The *All Aboard* team has held positions as university professors and administrators, business innovators, assessment specialists, popular show-band performers, jingle writers and recording performers, textbook and curriculum authors, and most importantly, teachers. All members of the team believe strongly in our mission and contribute to the overall product, its breadth and quality.

Perspective

Recently, several bestselling authors have expressed the pressing need for educational programs stimulating creativity, synthesis, and being able to think across curricular boundaries. Daniel Pink in *A Whole New World, why right brainers will rule the world* discusses the importance of the arts in helping generate the only truly unique quality that cannot be outsourced. Connecting subjects in a more comprehensive view requires first knowing at least one subject very well. Then, the next crucial step becomes that of making the connections meaningful for the child – mostly even without them knowing which subject has been addressed. Howard Gardner in *Five Minds for the Future* speaks about the importance of making the synthesis between subjects have meaning for humans.

A valued synthesis is not simply an algorithmic exercise. Rather, it gains power when it provides that sense of meaning, significance, and connectedness that so many seek today. . . . If synthesis simply entailed the following of rules, a well-programmed machine would suffice.

Our goal is to continue updating our curriculum and related offerings to ensure the highest possible quality. We have carefully maintained the integrity of the musical concepts – not making little songs to help us learn our numbers. Rather, we have developed a process that, in an age-appropriate manner, helps children learn to analyze and evaluate the relationship between numbers, notes, phrases, patterns, serial order of events, number lines and the form of songs. Also, they discover the relative distance between the planets and the corresponding distance between note in their favorite little song – this is done both from a spatial and temporal perspective.

Filling an Essential Need for Our Time

Four of the current bestselling books on the New York Times list point to the need for innovation in education and include creativity as an important goal – to go beyond the facts. Gladwell, Friedman, Pink, and Gardner¹ all discuss the need to develop the historically American quality of creativity. Each author hastens to add that substance and basic knowledge of subject matter are still very important. However, using that as a basis, approaching issues from a creative, multi-disciplinary perspective is key to success. Gladwell’s “Outliers” (the especially successful people) had the basic knowledge in hand, but their success

¹ Referring here to the following books: *Hot, Flat, and Crowded* by Thomas Friedman, *Outliers* by Malcolm Gladwell, *A Whole New World* by Daniel Pink, and *Five Minds for the Future* by Howard Gardner.



came from identifying unique – heretofore never seen - approaches stemming from their obvious creativity. All authors mention the importance of recognizing patterns. Ironically, or perhaps providentially, pattern recognition is one of the first topics listed in the national standards for both music and math for children ages 3-6. The *All Aboard* program has activities designed to build skill pattern recognition in almost every lesson.

Fifty-plus years ago, the Russians launched Sputnik – the first man-made satellite around the earth. At that time, students were hurried into advanced math classes because it was so important for the U.S. to “not fall from first in the world” in math education. Now, on a 2006 test of high-school student scores in relating math to everyday situations, the U.S. ranked 24th out of 30 countries! All the while, we’ve all heard of the need for “more math and science.” It is clear that a fresh approach, starting early in a child’s academic career, is called for – not just repeating the same process expecting different results.

The *All Aboard* curriculum is designed to foster creativity for the young children by expanding their horizon for applying math skills to their everyday life. For example, the children find patterns in songs, color charts, and dresses worn by the train ride characters. They discuss how the colors in a chart might represent the form of a newly learned song. They imagine how an inch-worm might measure his “scoot” in the song “The Inch-Worm Crawl.” They experiment with how many scoots it would take them to go between two spots on the floor while doing this “in time” with the song.

In *All Aboard* classes, the atmosphere is one of fun investigation – connecting the aural to the visual, to the tactile, to the large body movements and so on. Children experience concepts long before there is any definition or number to memorize. As Sherman Woo, our math “guru” said, “music is a pure language – washing over all of us with wonderfully complex organizational qualities, but it is not encumbered by words or numbers.” Children can experience these organizational qualities and relate them to cool patterns and fun movements. The whole purpose is to open their minds to the fun of learning not just math but to learning generally.

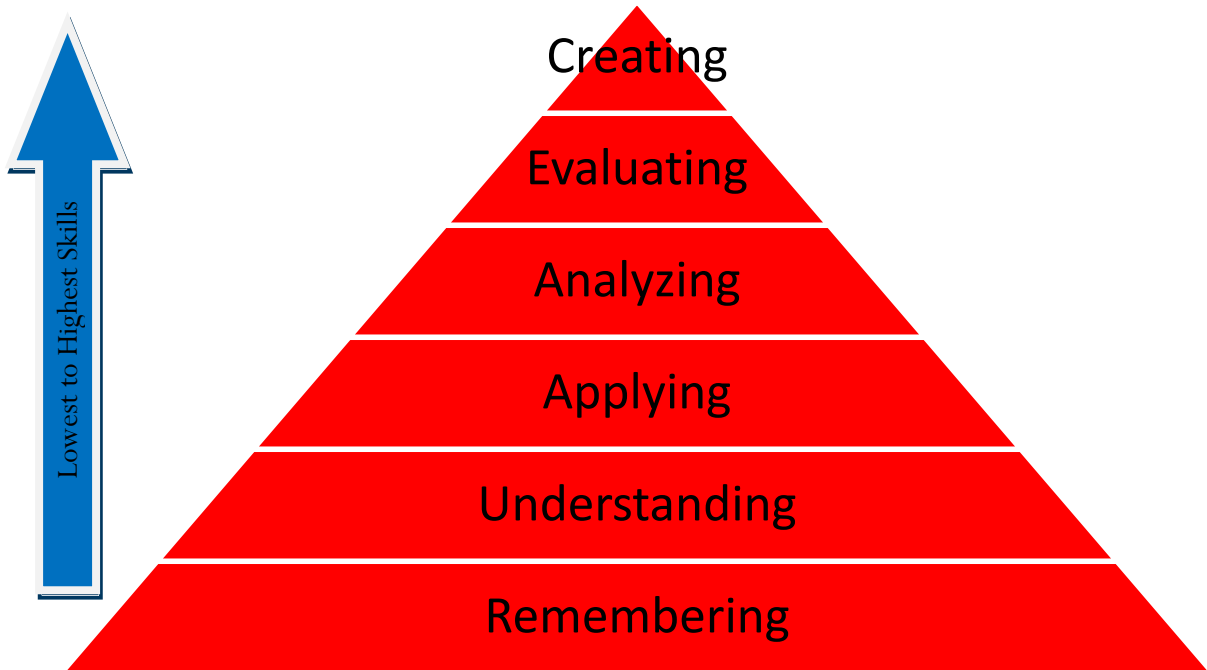
The All Aboard Magic

Why All Aboard Works:

Children experience a magical train ride that weaves math, language and music concepts together culminating in higher-order learning. The train stops at seven different stations as characters join the ride with new ideas and innovative ways to examine the world. The music, characters, train ride and the activities are designed to stimulate aural, vocal, gross and fine motors skills as well as analytical thinking.

The Pedagogical Foundation: Bloom’s Taxonomy of Cognitive Learning

To compete in today’s global society, children must be able to use higher-level thinking skills, such as applying knowledge, analyzing a problem, and creating a new solution rather than focusing on lower-level learning skills, such as recalling facts and basic understanding. The illustration below depicts Bloom’s Taxonomy.

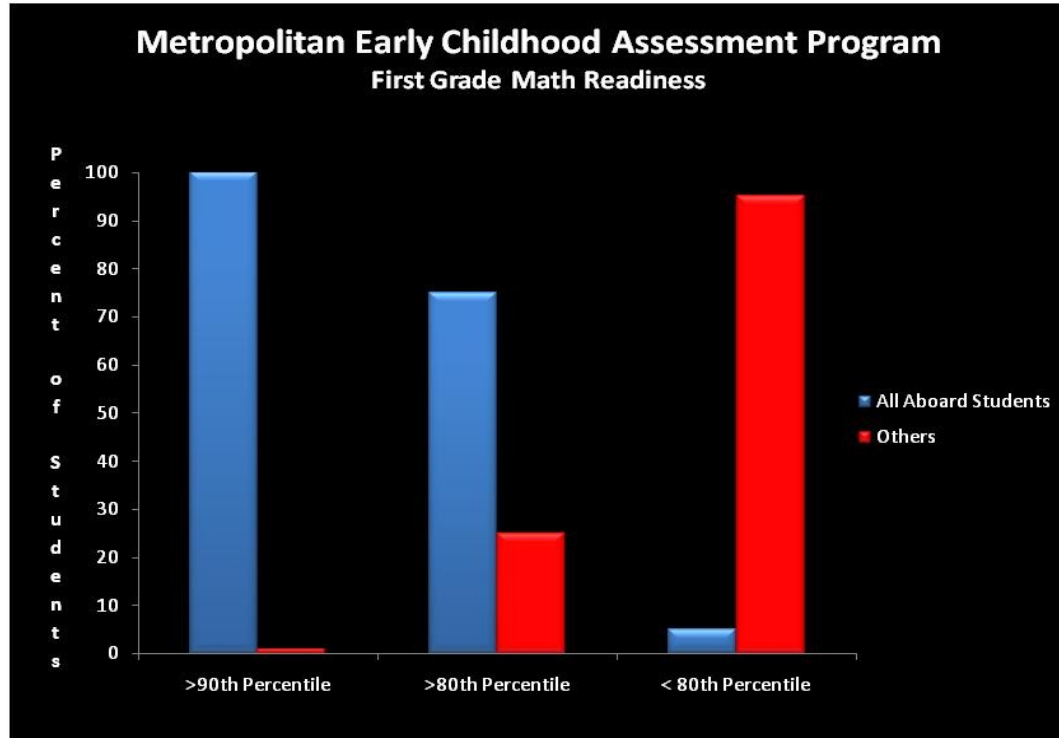


The Impact of All Aboard: Teaching and Reaching the Highest Level of Learning

The *All Aboard* program, through the integration of music, mathematics and language, exercises and develops the critical skills of:

- Applying abstract notions to “real” situations
- Evaluating and discriminating sounds, patterns, and movement
- Creating new solutions to problems

Preliminary research has shown that *All Aboard* students are better prepared to enter first grade. Independent studies have found that children enrolled in *All Aboard* score significantly higher on the Metropolitan Early Childhood Assessment Program First Grade Math Readiness test. The chart below illustrates that the only children that scored above the 90th percentile were those enrolled in the *All Aboard* program. It also shows that 75 percent of the children that score above the 80th percentile were enrolled in *All Aboard* program. Children not enrolled in the *All Aboard* program scored below the 80th percentile.



How All Aboard Works: A Sample of the Program

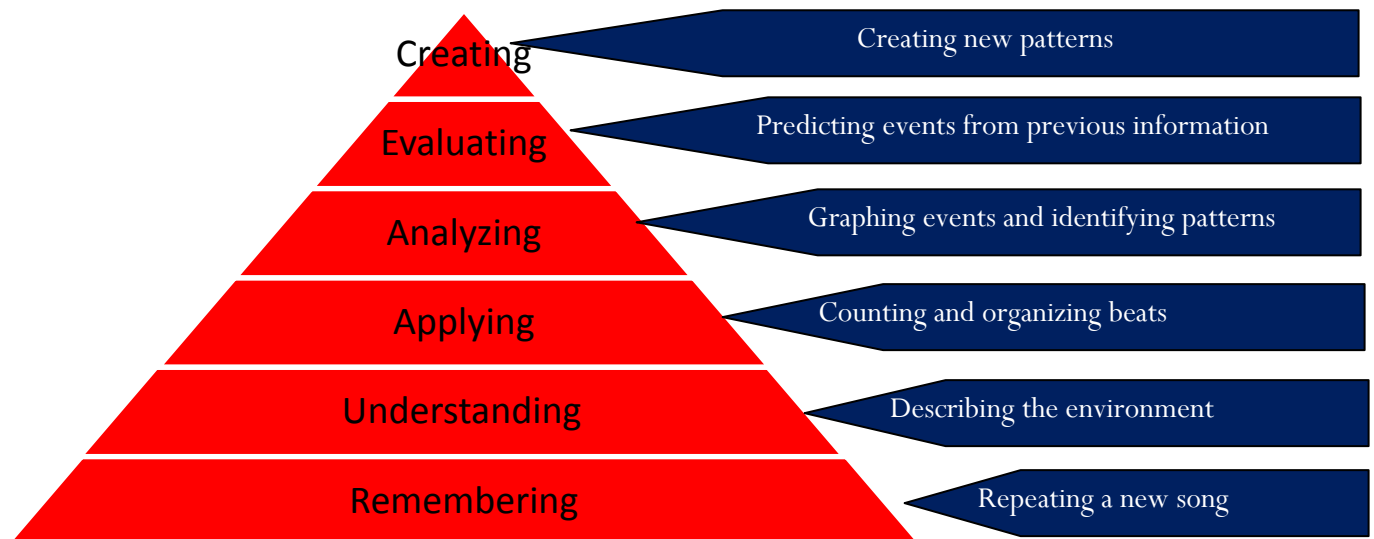
Each lesson in the *All Aboard* program is designed to develop the highest level cognitive skill in children ages three to five years. Children are presented concepts throughout the imaginary train ride, and their participation through the music stimulates and produces higher-order thinking.

Within each train stop, the children are introduced to musical and mathematical patterns, a universal concept which must be stimulated for creating new solutions to unknown problems. As each level of the taxonomy is mastered, the children’s ability to think critically is strengthened.

Some of the activities in each train stop include:

- Learning and repeating a new song
- Describing the train stop environment and situation
- Counting and organizing beats
- Graphing events and identifying patterns
- Predicting events from previous information
- Creating new patterns

Connecting Bloom's Taxonomy with the *All Aboard* Model:



Through this progression of learning, children reach the objectives through experiencing the wonderful organizational qualities of music and finding parallel organizational qualities in math and language.

Supporting Teachers -- A Hallmark of *All Aboard*

The strength of the *All Aboard* program focuses on providing initial and ongoing training for teachers. *All Aboard* understands that the instructors have the greatest impact on students, and must be thoroughly prepared as they tackle these new instructional models.

All Aboard training is comprehensive and is far beyond providing a familiarity with the curriculum. Our training model gives the teacher experience based on the outline below.

- ***All Aboard* Teachers Model the Program** – The certified *All Aboard* staff will model the program, from beginning to end. It is an interactive session, and encourages teachers to ask questions, make suggestions, and bring new and unique ideas for use in their school.
- ***All Aboard* Teachers Partner with New Teacher** -- We teach together allowing each new teacher to lead portions of a whole lesson while the *All Aboard* staff member assists. The lesson exemplifies a team-teaching experience.
- **New Teachers Teach** – Each teacher attending training throughout the year will be asked to teach a lesson in to the participants and staff for review. Positive feedback will be given as to how the lesson might be delivered better.

The overarching goal of the training is to make the teacher comfortable with the program and develop self-confidence in teaching the *All Aboard* program. The lessons are fun to teach and the children respond very



well. Because of the new methodologies, it may take some practice and many times a change in the perspective of the teacher.

Implementing *All Aboard*

Our Approach

All Aboard provides the curriculum, training and support necessary to enable each school to effectively implement our program on a continuing basis. During the first three years, *All Aboard* concentrates on faculty training. After this initial training, *All Aboard* will continue to support the faculty and students by ongoing teacher training, curriculum updates –through the *All Aboard* program liaison.

The implementation overview below is customizable for the individual schools. Our single motivation is to have a successful *All Aboard* program that will demonstrate student preparedness for entering first grade.

The components of our implementation:

- Curriculum, including written lesson plans, classroom materials, musical recordings
- Ongoing training to support 25 teachers
- Designated *All Aboard* Liaison to answer questions and provide ongoing support to each school
- Access to discussion board and other online support
- Value Added Components such as:
 - Timely research supporting the arts in education
 - Connection to program creators
 - Access to the *All Aboard* Speakers Bureau for all-campus presentations related to Brain Training, Arts Implementation Across the Curriculum

Curriculum

The *All Aboard* program exists as a two-year, 80-lesson supplement to PK/K education. There are 18 volumes of lesson plans, materials and musical recordings that provide a wealth of experiences for the children. The lessons are designed to be used in as short as 30 minutes or expanded to almost any reasonable length by the creative teacher. While there are very simple and direct curricular activities listed in the lesson plans, teacher-created advantage of “the teachable moment” is strongly encouraged. The 80-lesson entirety of the *All Aboard* program is intended for implementation over a two-year cycle of PK/K in prep for first grade. However, many schools just implement the first-year curriculum on one-year cycles.



Ongoing Training

The *All Aboard* Teacher Training Plan culminates over a three-year cycle – a “just in time” training program delivered when the teacher is ready for the next unit. The training is designed to make the teacher comfortable with the program and develop self-confidence in teaching the *All Aboard* program.

The training comprises three, seven-hour training sessions plus a summer retreat. All of these will be held at the school with the teachers. Two trainers will be leading each of these sessions and three teachers will be involved for the summer retreat.

Below is a model for implementation, although dates will vary based on compatibility with schedules.

- **All Aboard Teachers Model the Program:** Training Year I - four onsite training sessions -
 - Initial 7-hour session in August
 - October listening to teachers, recasting of vision and presentation of next set of lessons
 - January listening, recasting and presenting the rest of the year.
 - Summer. “XPO” – a 2-day session introducing the program to any teachers expanding the program *and* preparing for second-year curriculum. – also identification of Lead Teacher (TLC)
- **All Aboard Teachers Partner with New Teacher:** Training Year II - four onsite training sessions -
 - Initial 7-hour session in August
 - October listening to teachers, recasting of vision and presentation of next set of lessons
 - January listening, recasting and presenting the rest of the year.
 - Summer. “XPO” – a 2-day session introducing the program to any teachers expanding the program *and* preparing for second-year curriculum. – also continuing to nurture Socorro faculty as leaders.
- **New Teachers Teach:** Training Year III - three onsite training sessions -
 - Initial 7-hour session in August
 - Online support for new teachers and support for Socorro coordinator, having been identified.
 - January listening, recasting and presenting the rest of the year.
 - Summer. “XPO” – a 2-day session introducing the program to any teachers expanding the program *and* preparing for second-year curriculum. This also continues to support faculty as *All Aboard* program leaders.

Designated All Aboard Liaison

All Aboard will designate a certified trainer to be the contact liaison specifically for the individual school district. The *All Aboard* staff member’s responsibilities are to ensure the success and viability of the *All Aboard* program and be the central point of contact for teachers and administrators. In addition, the *All Aboard* liaison can provide information about supplemental at home products for parents and teachers interested in supporting their child outside the school environment. The *All Aboard* liaison will be available and our pledge is that we will respond to questions and comments no later than within a 24-hour period. The *All Aboard* liaison will attend at least one session per year so that face-to-face relationships can be formed.



Access to Online Discussion Board and Online Support

All Aboard is constantly updating our program and our services. Just as with our sister company *MIDI for Kids*, we are pursuing our goal of helping as many children as possible with our program. This includes keeping all involved as well informed with current philosophical support, current research, and enrichment generally supporting the interdisciplinary notion we promote.

Administrative Support with Timely Research Supporting the Arts in Education

The short explanation of the feature of our program is that we want to help the arts administrator do their job as effectively as possible. To us, this means providing as much current information as we encounter. For example, the Daniel Pink speech at TMEA, and his new book *A Whole New World*, provides a wealth of new thinking and challenge for the arts administrator. *All Aboard* is stepping up to help with, among many other things, translating the “Pink message” to specifics of classroom management and focus for the arts. If you are a part of our team, you will be in touch with the best minds in our industry devoted to helping the overall cause of developing brains through enlightened experience with the arts.

Connection to Program Creators

Our program creators are always interested in feedback about our program. Each lesson, each song, in fact, every detail possible is planned to augment the effect of the lesson, yet maintain an artistic quality deserved by our art. We welcome questions and delight in interchange with those in the “trenches” of education.

Availability of Speakers Bureau

All Aboard has a talented speaker’s bureau of recognized professionals prepared to present and discuss new teaching methodologies, the impact of brain training on education, and other timely topics. *All Aboard*® speakers can present day-long sessions with selected faculty – or present at convocations to entire districts, school boards, or interested parents. Our programs are designed to heighten the awareness of the power of the arts in education and the positive impact on connecting math, science and language with the arts. *All Aboard* can tailor the presentations to the needs of the district.

For More Information

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