

Making Connections with Music and Technology

By James Frankel, Ed.D.

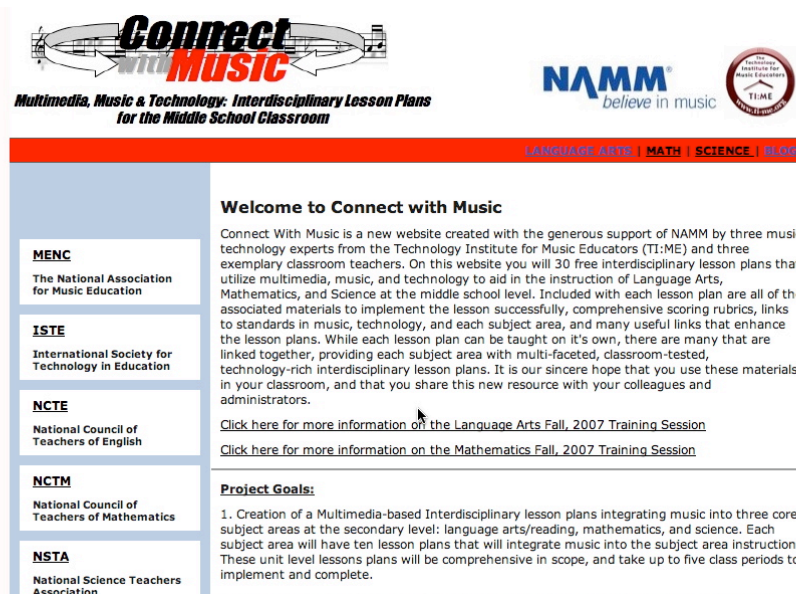


Multimedia, Music & Technology: Interdisciplinary Lesson Plans for the Middle School Classroom

Over the past twenty years many research studies have shown that there is a strong connection between music, the brain, and other subject areas. Studies have shown that students who study music tend to achieve higher scores in standardized tests than those who do not. Experience in music activities can help students with literacy, reading comprehension, listening, critical and analytical thinking skills, mathematical and logical thinking, and so much more.

Connect with Music

While there are connections between music and other subject areas, opportunities for interdisciplinary lessons are often hampered by a lack of knowledge in how to best incorporate one subject to teach the other. With this in mind, three music technology experts from the **Technology Institute for Music Educators, TI:ME** (www.ti-me.org) proposed a project that addressed this problem by creating an innovative new resource for middle school teachers. Introducing **Connect With Music** (www.connectwithmusic.org).



Connect With Music
Multimedia, Music & Technology: Interdisciplinary Lesson Plans
for the Middle School Classroom

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Technology Institute for Music Educators

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Welcome to Connect with Music

Connect With Music is a new website created with the generous support of NAMM by three music technology experts from the Technology Institute for Music Educators (TI:ME) and three exemplary classroom teachers. On this website you will find 30 free interdisciplinary lesson plans that utilize multimedia, music, and technology to aid in the instruction of Language Arts, Mathematics, and Science at the middle school level. Included with each lesson plan are all of the associated materials to implement the lesson successfully, comprehensive scoring rubrics, links to standards in music, technology, and each subject area, and many useful links that enhance the lesson plans. While each lesson plan can be taught on its own, there are many that are linked together, providing each subject area with multi-faceted, classroom-tested, technology-rich interdisciplinary lesson plans. It is our sincere hope that you use these materials in your classroom, and that you share this new resource with your colleagues and administrators.

[Click here for more information on the Language Arts Fall, 2007 Training Session](#)
[Click here for more information on the Mathematics Fall, 2007 Training Session](#)

Project Goals:

1. Creation of a Multimedia-based Interdisciplinary lesson plans integrating music into three core subject areas at the secondary level: language arts/reading, mathematics, and science. Each subject area will have ten lesson plans that will integrate music into the subject area instruction. These unit level lessons plans will be comprehensive in scope, and take up to five class periods to implement and complete.
2. Inspiring Students' Mastery of Standards in technology, core subject areas, and creating

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Language Arts, Math, and Science

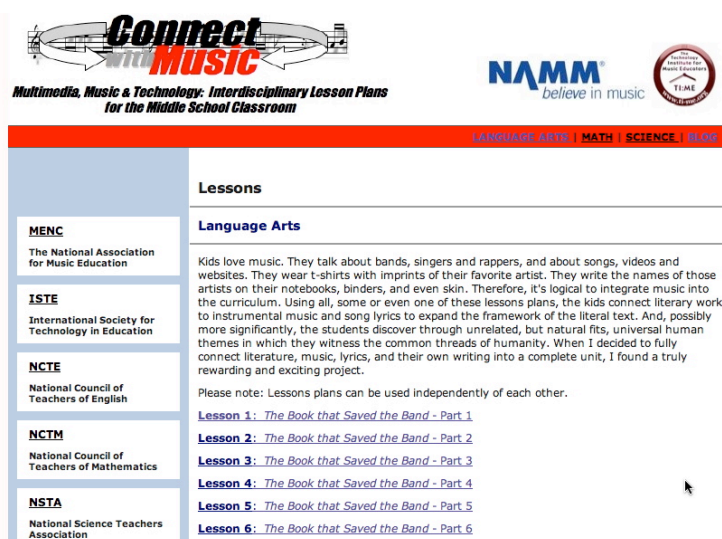
Generously funded by a grant from NAMM (www.namm.org), Connect With Music is currently in its second phase. During the first year of funding, Dr. Tom Rudolph, Stefani Langol and I paired with three content area experts to create a website that contains 30 interdisciplinary lesson plans that utilize multimedia, music, and technology to aid in the instruction of Language Arts, Mathematics, and Science at the middle school level. Included with each lesson plan are the associated materials to implement the lesson successfully, comprehensive scoring rubrics, links to standards in music, technology, and each subject area, and many useful links that enhance the lesson plans. While most lesson plans can be taught on it's own, there are many that are linked together, providing each subject area with multi-faceted, classroom-tested, technology-rich interdisciplinary lesson plans. In addition to the lesson plans and associated resources, the website contains an interactive blog where teachers can post comments and questions about the lessons as well as examples of student work.

Phase Two

After overwhelmingly positive reviews from peers and site visitors, TI:ME proposed a second phase of the grant where middle school language arts, mathematics, and science teachers would be trained by the three pairs of experts on how to effectively utilize the site with their own students through a series of Saturday workshops. In addition to the training, each teacher is encouraged to create their own lesson plans that use music, multimedia, and technology to teach concepts in their respective content area. NAMM once again generously funded the project, and workshops for Language Arts and Mathematics teachers are now in full swing. By January, 2008 there will be as many as 20 lesson plans for Language Arts and Mathematics on the www.connectwithmusic.org website as well as examples of student work. To get an idea of the types of materials on the website, let's take a look at an example from each discipline.

Language Arts Example Lesson

Jason Finn, an English teacher at the Haverford Middle School in Havertown, PA, has created a wonderful set of 10 lesson plans titled *The Book That Saved The Band*.



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Lessons

Language Arts

Kids love music. They talk about bands, singers and rappers, and about songs, videos and websites. They wear t-shirts with imprints of their favorite artist. They write the names of those artists on their notebooks, binders, and even skin. Therefore, it's logical to integrate music into the curriculum. Using all, some or even one of these lesson plans, the kids connect literary work to instrumental music and song lyrics to expand the framework of the literal text. And, possibly more significantly, the students discover through unrelated, but natural fits, universal human themes in which they witness the common threads of humanity. When I decided to fully connect literature, music, lyrics, and their own writing into a complete unit, I found a truly rewarding and exciting project.

Please note: Lesson plans can be used independently of each other.

[Lesson 1: The Book that Saved the Band - Part 1](#)
[Lesson 2: The Book that Saved the Band - Part 2](#)
[Lesson 3: The Book that Saved the Band - Part 3](#)
[Lesson 4: The Book that Saved the Band - Part 4](#)
[Lesson 5: The Book that Saved the Band - Part 5](#)
[Lesson 6: The Book that Saved the Band - Part 6](#)

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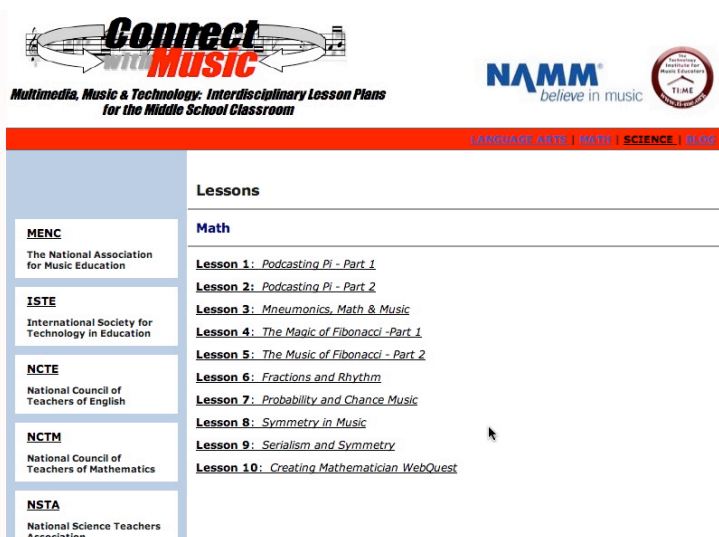
These lessons, that can be taught together or separately, developed from a project that Jason has done with his students in the past. He describes it this way:

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In Lessons 1 and 2, Language Arts students write poems based on a novel that they have read and analyzed during class. In groups – or “bands”, students use elements of the story and poetry to create a cycle of songs that relate various thematic elements of the novel. Once these poems are edited, revised, and critiqued, they set to work on setting the poetry they have written to music using MIDI/Digital Audio software such as *GarageBand*, *SONAR HomeStudio*, or *FL Studio*. The remaining 8 lessons have the students involved in aspects of album production – from creating cover art to arranging an album release party. This series of lessons has been extremely successful in the past. Jason Finn, working together with music teacher Dr. Tom Rudolph, has created the complete list of lessons and they are available for free to anyone who visits the www.connectwithmusic.org site and downloads the lesson materials.

Mathematics Sample Lesson

Katy O'Malley, a math teacher at the Franklin Avenue Middle School in Franklin Lakes, NJ, worked with me to create 10 lesson plans that utilize music and multimedia to teach math concepts such as Pi, the Fibonacci Sequence, fractions, common mathematical equations, probability, symmetry, and more. The link between math and music is particularly strong, and these lessons provide students with an opportunity to learn math concepts in a completely different light.



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Lessons

Math

- Lesson 1: [Podcasting Pi - Part 1](#)
- Lesson 2: [Podcasting Pi - Part 2](#)
- Lesson 3: [Mnemonics, Math & Music](#)
- Lesson 4: [The Magic of Fibonacci - Part 1](#)
- Lesson 5: [The Music of Fibonacci - Part 2](#)
- Lesson 6: [Fractions and Rhythm](#)
- Lesson 7: [Probability and Chance Music](#)
- Lesson 8: [Symmetry in Music](#)
- Lesson 9: [Serialism and Symmetry](#)
- Lesson 10: [Creating Mathematician WebQuest](#)

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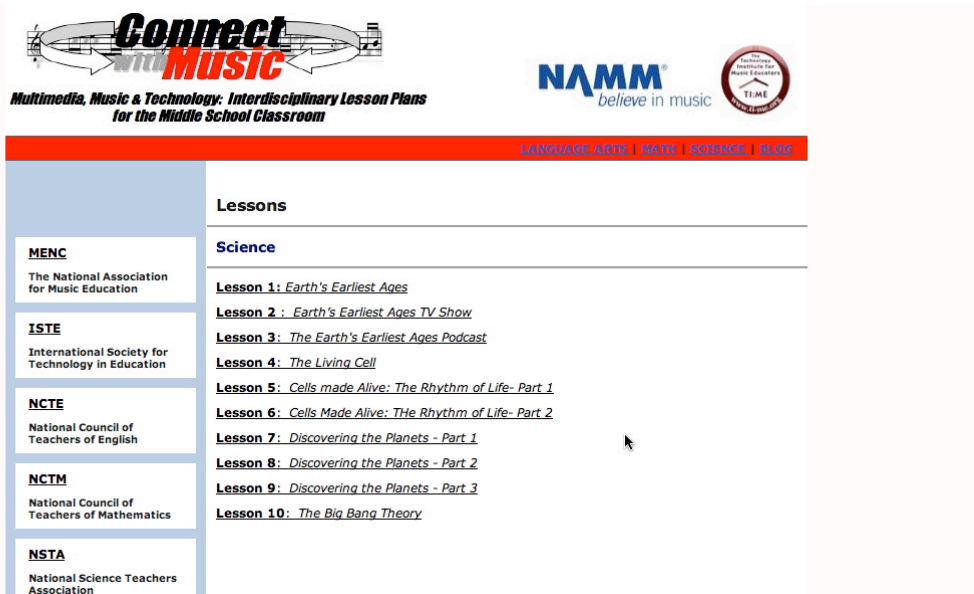
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In Lesson 3, students create songs as mnemonic devices to help them remember mathematical formulas and concepts such as the order of operations (PEMDAS), multiplying binomials (FOIL), the Quadratic Formula, and the ever-popular Pythagorean theorem. Using MIDI/Digital Audio software titles such as *GarageBand*, *SONAR HomeStudio*, or *FL Studio*, students use loops to create accompaniments for lyrics that contain the specific mnemonic devices. Just think of reciting the ABC’s set to the tune of *Twinkle Twinkle, Little Star* and you’ve got the idea. In Lesson 7, students discover probability by rolling dice, recording the results, and converting their results into pitches in a pentatonic scale and rhythm patterns to create a mathematical twist on Chance Music. These are some of the innovative ways that math teachers can connect with music.

Science Sample Lesson

Valerie Ordway, a science teacher at the Sharon Middle School in Sharon, MA, worked with Stefani Langol to create 10 lesson plans that link science with music and technology. Covering a variety of topics including geology, astronomy, and biology, students will thoroughly enjoy and learn from the multimedia rich environment that these lesson plans provide.



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Lessons

Science

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Lesson 1: [Earth's Earliest Ages](#)

Lesson 2 : [Earth's Earliest Ages TV Show](#)

Lesson 3: [The Earth's Earliest Ages Podcast](#)

Lesson 4: [The Living Cell](#)

Lesson 5: [Cells made Alive: The Rhythm of Life- Part 1](#)

Lesson 6: [Cells Made Alive: The Rhythm of Life- Part 2](#)

Lesson 7: [Discovering the Planets - Part 1](#)

Lesson 8: [Discovering the Planets - Part 2](#)

Lesson 9: [Discovering the Planets - Part 3](#)

Lesson 10: [The Big Bang Theory](#)

In Lesson 2, students create a television program that highlights “Earth’s Earliest Ages.” By utilizing software such as *iMovie* or *MovieMaker*, students create well-crafted videos, containing both still images and video that illustrates comprehension of the science concepts addressed in the lesson. Additionally, using MIDI/Digital Audio software to create the soundtrack to the video, students will enjoy the real-world experience of creating a production in an environment with which they are familiar. In Lesson 9, students compose a musical score that enhance a PowerPoint presentation about the planets that was created in Lessons 7 and 8. Using examples such as *The Planets* by Gustav Holst, students compose music that reflects the environment and mythological origin of each planet.

Summary

The interdisciplinary lessons plans on the Connect With Music site (www.connectwithmusic.org) are intended for use by non-music educators, but are perhaps best suited for a team teaching approach. As a subscriber to the SoundTree newsletter, you are most likely a music educator who is interested in how technology can enhance music instruction. Connecting music with other subject areas is a wonderful opportunity both music advocacy and for exposing students to the power of music and technology – especially those students who are not involved in the school music program.

It is the sincere hope of all of the teachers involved in the www.connectwithmusic.org project that you review at the materials on the site and incorporate some of them in your teaching. Also, consider getting together with the language arts, mathematics, or science teacher in your building and try them out. Please feel free to comment on any of the materials by visiting the blog on the website. We'd like to hear from you.

About the Author

James Frankel, Ed. D., is an instrumental-music teacher at the Franklin Avenue Middle School in Franklin Lakes, New Jersey. He also serves as an adjunct faculty member at Teachers College, Columbia University, and at Montclair State University. He is the author of *Teaching Classroom Music in the Keyboard Lab* (SoundTree, 2003).