

infotech by annette lamb and larry johnson

turn up the music with digital technologies

A group of young people are picking out music for a poetry slam.

A pair of students are wearing ear buds and playing a keyboard attached to a computer.

A child reads a story into the laptop's microphone as music plays softly in the background.

Turn your school library into a learning laboratory where students can explore all aspects of music as they address standards across the curriculum. Although music plays an important role in the lives of young people, it is often ignored and even censored by educators. Many schools have filtered all MP3 downloads from the Internet and have prohibited music players from school grounds. From the built-in microphone on a laptop to iPods and smart cell phones, the potential for music in learning is enormous. How do we balance concerns about lyrics and "audio cheating" with the benefits associated with the musical medium?

MUSIC IN TEACHING AND LEARNING

The teacher-librarian is in the perfect position to see applications of music across the curriculum. Regardless of whether you have received formal music training or just enjoy listening to songs on the radio, there are many ways to strengthen your school's music collection and support music for learning.

Music is one of the multiple intelligences described by Howard Gardner (1993). Music intelligence is the ability to produce and appreciate rhythm, pitch, and timbre and have an appreciation of the forms of musical expression. Music is for the whole brain and possibly the first of the intelligences to develop. In the decades since Gardner first introduced the theory of multiple intelligences, educators have widely adopted his framework. However, although many schools have structured their school reform around the multiple intelligences, school music programs have been cut or dropped dramatically in favor of funding for testing and basic literacy programs.

Digital technologies provide a range of opportunities for exploring, infusing, and creating music.

EXPLORING DIGITAL MUSIC RESOURCES

Whether seeking information about musicians or looking for music clips, a variety of resources are available on the Internet.

Databases. Many of the popular electronic databases contain a music section, but few provide audio clips. For older students, consider a subscription to Grove Music Online (www.grovemusic.com/), where students can find and listen to music, examine musical scores, read biographies, explore world cultures, and learn the parts of instruments.

Seek out web sites that specialize in music files for young people. The National Institute of Environmental Health Sciences maintains a huge collection of sing-along songs (www.niehs.nih.gov/kids/music.htm), including

musical instrument digital interface (MIDI) audio files and lyrics.

Interactives. From playing in an orchestra to composing music, many web sites provide engaging interactive content and tools for young people. Explore these sites:

Arizona Opera (www.azopera.com/learn.php)

Arts Alive (www.artsalive.ca/)

Dallas Symphony (www.dsokids.com/)

New York Philharmonic Kidzone (www.nyphilkids.org/)

San Francisco Symphony (www.sfskids.org/)

Music blogs. MP3 blogs, also known as *music blogs* or *audioblogs*, are a type of weblog that makes digital music files available for download. Although some of these Internet DJs post music tracks with granted copyright permissions, others focus on *indie music* (i.e., not connected to the "big four" recording labels) or out-of-print music. In some cases, bloggers post a disclaimer that they are willing to remove any music if the copyright holder objects. Thousands of these blogs exist, with names such as Bubblegum Machine (www.bubblegum-machine.com/), Classical Connection (www.classicalconnection.blogspot.com), and Destination Out (<http://destination-out.com/>). You can also sample music from several different MP3 blogs at the Hype Machine (<http://hype.non-standard.net/>), an audio blog aggregator. Keep in mind that blogs vary tremendously in content and that some may not be appropriate for school students.

Web radio. People are increasingly listening to live and replayed radio programming through the Internet. Three interfaces are most commonly used for webcasts:

- Apple iTunes (www.apple.com/itunes/);
- Real Radio (<http://radio.real.com/>);
- Windows Media (www.windowsmedia.com/mediaguide/radio/).

Radio broadcasts are available from around the world, including dozens of languages. Popular webcasts include

- ABC (www.abc.net.au/streaming/);
- BBC (www.bbc.co.uk/radio/d/);
- CBC (www.cbc.ca/radio/);
- NPR (www.npr.org/).

Popular radio directories include

- Open Directory: Internet Radio (<http://dmoz.org/Arts/Radio/Internet/>);
- Radio-Locator (www.radio-locator.com/).

Music video. Some music-video sites are free; others require a membership fee. Keep in mind that many contemporary artists have audio clips and music videos at their personal web sites, such as

- Beck (www.beck.com/);
- Jake Shimabukuro (www.jakeshimabukuro.com/videos.php).

Music videos can also be found and viewed. They are streamed from varied sites, such as

- AOL Music (<http://music.aol.com/>);
- Yahoo Launch (<http://launch.yahoo.com/musicvideos/>).

Want to know the name of that tune playing on your radio? Visit YES.com (<http://yes.com/index.php>) and enter the station's call letters or key in your zip code. Or just look at the map and see what is starting to play around the country.

Music searching. When attempting to locate a specific title or the work of a musician or group, try using an audio search engine. For example, students can easily find a short segment from the song "War" from the early 1970s (Williams & Edwards, 1970) for use in a project related to antiwar demonstrations. Using Audacity (<http://audacity.sourceforge.net/>), students could create a 10-second clip focusing on the well-known chorus "War, what is it good for? Absolutely nothin'!"

Some popular audio search engines include

- Altavista (www.altavista.com/audio/default);
- FindSounds (www.findsounds.com/);
- Music Robot (www.musicrobot.com/);
- SingingFish from AOL (<http://search.singingfish.com/>);
- Yahoo (<http://audio.search.yahoo.com/>).

Acquiring music. From the earliest Internet days, music has been shared. Today, peer-to-peer (P2P) computer network file-sharing programs, such as Morpheus (<http://morpheus.com/>) and eMule (www.emule-project.net/), are used to upload and download music files. Though the technology can be used to acquire accessible copyrighted materials,

there are a significant number of copyright holders who have authorized the sharing of their content for noncommercial purposes, often using the Creative Commons (<http://creativecommons.org/>) format license. Remember that most commercially released popular songs are not currently authorized for free redistribution but require separate purchase or licensing.

A huge source for acquiring copyright-free music online is the Audio Archive (www.archive.org/details/audio). Music from the locations on this site can be legally used by students and teachers in their multimedia and web site publications. The music can be remixed and shared.

INFUSING MUSIC ACROSS THE CURRICULUM

Music can set mood, motivate reluctant learners, and address individual differences. However, for music to have a real impact on teaching and learning, it is important to form a collaborative team that includes the teacher-librarian, music educator, and classroom teachers. The resources at ArtsEdge (<http://artsedge.kennedy-center.org/>) are a natural place to begin a discussion of standards-based connections to music. As you explore the possibilities, search Marcopolo (www.marcopolo.search.org/) for music connections across the curriculum.

Music and picture books. Over the past several years, music CDs have become popular companions to children's books. Music plays a central role in *The Remarkable Farkle McBride* (2003) and many other picture books by John Lithgow. At his Lithgow Palooza web site (<http://johnlithgow.com/>), you can sample his projects. A series of picture books featuring songs like "Take Me Home Country Roads" (Denver, 2005) have introduced a new generation to John Denver. Recently, original poems by Walter Dean Myers were brought to life through harmonica and guitar riffs, in *Blues Journey* (2003). Poetry and music are a natural combination that can be found in many audio-enhanced picture books.

Music and novels. From historical novels to realistic fiction, seek ways to combine music with literature. Whether reading books from the American Civil War or

French Revolution, set the mood with music from the period. For example, *Nory Ryan's Song* (Giff, 2002) is a story set in Ireland during the potato famine and a great opportunity to play Celtic music. In some cases, music may even play a central role. For instance, in *Bud, Not Buddy* (Curtis, 2000), the central character is searching for his jazz musician father. This theme provides a great context for listening to jazz and learning about its origins. Visit NEA Jazz in the Schools (<http://media.jalc.org/nea/>) and PBS Kids: Jazz (<http://pbskids.org/jazz/>) for great lesson materials. Another approach involves students creating their own soundtrack to accompany a novel. Does country, hip-hop, or jazz best fit the story?

Music and mnemonic devices. Whether singing about the functions of conjunctions or the process of passing legislation, teachers have used music in learning for decades. The Emmy Award-winning series *Schoolhouse Rock* is one example that most people remember from their childhoods. Grammar, math, science, and social studies are just a few of the topics covered by the 46 educational music videos, now available on DVD.

The musical approach began long before the days of *Schoolhouse Rock*, though. Listen to science-themed folk songs from the 1950s at Singing Science Records (www.acme.com/jef/singing-science/). Today, groups such as AstroCappella (www.astrocappella.com/) continue the tradition.

Research has shown that combining simple repeated melodies with accompanying visuals that reinforce the content is effective in learning. So get your students involved in writing their own music.

Music, metaphor, and contemporary issues. Songs such as "The River" by Garth Brooks and Victoria Shaw and "Hazy Shade of Winter" by Paul Simon are rich opportunities to explore metaphor in music and discuss the themes of pop culture. *Stairway to Heaven: Examining Metaphor in Popular Music* (Carmichael, 2006) is the title of one of many lessons at ReadWriteThink (www.readwritethink.org/) that uses music in language arts.

Music with a message. Seek out lesser-known musicians with unique perspectives.

Consider how the music of someone such as American Indian Jack Gladstone (www.jackgladstone.com/) might be used across the curriculum. His songs "Sacagawea" and "When the Land Belonged to God" are biographical; "Tappin' the Earth's Backbone" is environmental; and "Lewis and Clark's Traveling Magical Show" is historical.

Music and culture. Explore the music and culture of a particular area of the world. For example, students might play learn to play the Thumb Piano (<http://pbskids.org/africa/piano/>) as they explore African culture.

Cellist Yo-Yo Ma started the Silk Road Project (www.silkroadproject.org/) to encourage the exploration of different cultures and their music. The River of Song web site (www.pbs.org/riverofsong/) explores contemporary music along the Mississippi River.

Music and historical recordings. Did you know that there are multiple versions of the "Battle Hymn of the Republic"? You can listen to them and many other patriotic melodies and historical recordings at the Library of Congress Performing Arts Digital Library (www.loc.gov/rr/perform/ihas/ihashome.html).

Music and documentary. How does music affect our lives? National Public Radio (www.npr.org/programs/specials/vote/list100.html) identified 100 of the most important American musical works of the 20th century. The Experience Music Project (www.emplive.org/) explores music in modern culture. Students can listen to music, along with the people and stories behind the music. Ask students to choose a song that represents this millennium and to write their own minidocumentary.

Music and ethics. Issues related to music copyright are an excellent opportunity for student inquiry and debate. ReadWriteThink's *Copyright Infringement or Not? The Debate Over Downloading Music* (Taylor, 2006), at www.readwritethink.org/lessons/lesson_view.asp?id=855, explores this topic at the high school level.

All the regulations and restrictions can be daunting for students and teachers who want to use music in the classroom. The portal site Ourmedia (www.ourmedia.org/) has become a global community for hous-

ing and sharing media, as well as a resource for locating legal music.

CREATING MUSIC

Technology can play a role in all phases of music production, including song writing, recording, editing, mixing, and sharing.

Hardware. A range of peripheral devices can support music applications in the curriculum. First, you need a way to play music. A good set of portable speakers is

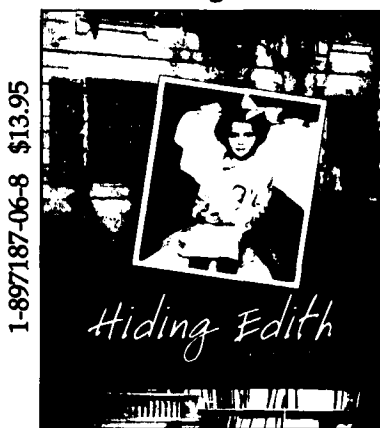
essential for large group activities. Some schools are now providing ear buds for each student, rather than messing with headsets. If your computers do not have built-in microphones, it is easy to attach an inexpensive microphone.

Many music classrooms use MIDI connections and keyboards (acoustic piano) hooked up to computers to create music. The electronic keyboard can play the sounds of any instrument. Computer technology enables users to arrange the notes

series picks for any semester

the holocaust remembrance series for young readers

Hiding Edith



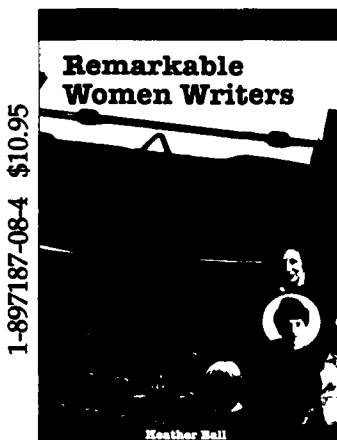
"Hiding Edith, along with others in the Holocaust Remembrance Series, should be part of every elementary school library collection."

— CM Magazine

Available in January...
Hana's Suitcase on Stage

the women's hall of fame series

Remarkable Women Writers



"A nice collection of short biographies... students looking for basic information for reports or for general interest will find it very useful."

— Cherry Creek School District

Coming this spring!
Incredible Women Inventors

Second Story Press

www.secondstorypress.ca

and change the timing. Think of it as a musical word processor. Work with your music teacher to develop a music station in your library, where students can explore and create audio resources outside the music classroom.

Software. Before investing in expensive software, explore free, open-source options. For example, Audacity (<http://audacity.sourceforge.net/>) is a popular cross-platform application that allows students to record and edit audio clips for web and multimedia applications. Other examples include

- **Band in a Box** (www.band-in-a-box.com/);
- **Bias Peak** (Mac only) (www.bias-inc.com/);
- **GarageBand** (Mac only) (www.apple.com/ilife/garageband/);
- **Sound Forge** (www.sonymediasoftware.com/).

Mash-ups and remixes. Rather than create original works, some students may want to produce remixes. Music mash-ups—sometimes called *bootlegs*, *blends*, or *cutups*—are a musical home brew, often of illegal music (derivative works), created by combining elements of two or more songs to form a new piece of music. The ccMixer web site (<http://ccmixter.org/>) is a community music-remixing site that provides users both software and music for cutting up and creating their original mash-up musical work using legal resources.

Music and multimedia projects. Look for music options that are already embedded in other software. For example, PhotoStory for Windows (www.microsoft.com/windowsxp/using/digitalphotography/photostory/default.msp) provides an easy-to-use music generator that can be used with graphics, text, and narration to create high-quality student projects. iPhoto for the Mac (www.apple.com/dotmac/photocast.html) also provides a tool for adding audio to slide shows.

Explore examples of student-produced music at Apple Student Gallery (<http://edcommunity.apple.com/gallery/student/>).

MUSIC AND LEARNING

Music can open the mind to learning across the curriculum and pave the way for independent learning. Music embodies the multiple intelligences described by Gardner (1993). Writing lyrics, creating scores, cre-

ating complicated patterns, and operating keyboards requires complex critical and creative thinking. Music can be an optimal learning experience, or a *flow experience* (see Csikszentmihalyi, 1990), which completely involves a person. Using an array of digital technologies, today's teacher-librarian can design learning environments that help young people explore, infuse, and create music.

REFERENCES

Carmichael, S. (2006). *Stairway to heaven: Examining metaphor in popular music*. Retrieved September 14, 2006, from www.readwritethink.org/lessons/lesson_view.asp?id=855

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper Perennial.

Curtis, C. P. (2000). *Bud, not Buddy*. New York: Yearling.

Denver, J. (2005). *Take me home, country roads: Score and CD included!* Nevada City, CA: Dawn.

Gardner, H. (1993). *Multiple intelligences: The theory in practice*. New York: Basic Books.

Giff, P. R. (2002). *Nora Ryan's song*. New York: Yearling.

Lithgow, J. (2003). *The remarkable Farkle McBride*. New York: Simon & Schuster.

Myers, W. D. (2003). *Blues journey*. New York: Holiday House.

Taylor, S. (2006). *Copyright infringement or not? The debate over downloading music*. Retrieved September 14, 2006, from www.readwritethink.org/lessons/lesson_view.asp?id=855

Williams, P., & Edwards, D. (1970). *War* [Produced by N. Whitfield]. On *Psychedelic Shack* [album]. Detroit, MI: Gordy.

Drs. Annette Lamb and Larry Johnson both teach in the School of Library and Information Science, Indiana University, Indianapolis, as part of the Teacher of School Library Media Leadership Online Blue Ribbon Certification Program available to educators around the world (<http://eduscapes.com/blueribbon/>). Visit <http://annettelamb.com/> for more exciting teaching ideas.



DIGITAL MUSIC PRIMER

STREAMING VERSUS DOWNLOADING

Streaming audio means that a remote server sends your computer small amounts of audio data (a *data stream*) that are held in a buffer until there is enough to begin playing. If there is no interruption, the music will play to the end of the stream. As each chunk of the audio is played, the data is discarded.

Downloading music means that the audio files from an Internet location are copied (downloaded) onto a local storage area on your computer. The advantage is that once you have a local copy, you can store it, play as often as you wish, duplicate the file, and distribute it to others based on applicable copyright rules.

A LITTLE ABOUT AUDIO FILES

Music, audiobooks, famous speeches, sounds, and sound effects can all be found in a digital audio format. Digital audio is available in a variety of file formats, including RealAudio, WAV (waveform), MIDI, and MP3.

MPEG (Moving Pictures Experts Group) is a set of standards used for coding audiovisual information in a digital compressed format. The MP3 format has become the popular way to store music and other digital audio files. Because MPEG files are highly compressed, they are smaller than other files of the same quality.

our columnists

Rachelle Lasky Bilz: Head librarian, Lake Ridge Academy, North Ridgeville, OH; author of *Life Is Tough: Guys, Growing Up, and Young Adult Literature*. bilzr@lakeridgeacademy.org

Barbara Braxton: Teacher-librarian, Palmerston District Primary School, Palmerston, Australian Capital Territory. barbara@iimetro.com.au

Sharon Coatney: Acquisitions editor for School Library Media and Libraries Unlimited and a past president of the American Association of School Librarians. sharonc4@starband.net

Reid Goldsborough: Author of *Straight Talk About the Information Superhighway*. reidgold@netaxs.com, <http://members.home.net/reidgold>

Michele Gorman: Teen services manager of Charlotte and Mecklenberg County's ImaginOn, Charlotte, NC, and author of *Getting Graphic! Using Graphic Novels to Promote Literacy With Preteens and Teens*. comixlibrarian@aol.com, www.imaginon.org

Holly Gunn: Teacher-librarian, Halifax Regional School Board, Dartmouth, NS. hgunn@accesscable.net

Sara Catherine Howard: Adjunct instructor, Department of Library Science, Sam Houston State University, Huntsville, TX. lis_sch@shsu.edu

Larry Johnson: Professor, School of Library and Information Science, Indiana University–Purdue University, Indianapolis, IN. ljohnson@mail.escapees.com

Annette Lamb: Professor, School of Library and Information Science, Indiana University–Purdue University, Indianapolis, IN. alamb@eduscapes.com

Teri S. Lesesne: Assistant professor, Department of Library Science, Sam Houston State University, Huntsville, TX. lis_tsl@shsu.edu

David Loertscher: Professor, School of Library and Information Science, San Jose State University, San Jose, CA; president of Hi Willow Research and Publishing; and past president of the American Association of School Librarians. dloertscher@teacherlibrarian.com

Keith McPherson: Lecturer and coordinator, Language and Literacy Education Research Centre, University of British Columbia, Vancouver. keith.mcpherson@ubc.ca

Kate Houston Mitchoff: School corps librarian, Multnomah County Library, Portland, OR. kateho@yahoo.com

Kathleen Odean: Librarian, speaker, and author of *Great Books for Girls* (revised 2002) and other guides. Rhode Island. kathleenodean@hotmail.com, www.kathleenodean.com

John Peters: Supervising librarian of Central Children's Room, Donnell Library Center, New York. cf071@yahoo.com, www.nypl.org

Esther Rosenfeld: Educational and school library consultant; former coordinator of libraries for Toronto District School Board; and past president of the Ontario School Library Association, 2002 and 2003. erosenfeld@teacherlibrarian.com

Joanne Troutner: Director of media/technology, Tippecanoe School Corp, and owner of Creative Computer Enterprises, Lafayette, IN. troutner@mindspring.com, www.jtroutner.com

Robert D. Wilson: Director and head teacher, Moccasin Community Day School, Groveland, CA. coltrane@lodelink.com, www.simplyhaiku.com

Betty Winslow: Media center director, Bowling Green Christian Academy, Bowling Green, OH. freelancer@wcnet.org