

Digital Sound and Music

<http://home.swfla.rr.com/ohaver/SoundandMusic/>

Tom O'Haver
toh@umd.edu

Mary O'Haver
ohaverma@verizon.net

<http://www.wam.umd.edu/~toh>

<http://www.wam.umd.edu/~toh/mary.html>

Tentative Time Schedule (half-day format)

First hour	Demonstration of basic recording with Windows <i>Sound Recorder</i> ; playing back digital sound (B1-3), using sounds on Web pages (B10-11). Free time to work on hands-on activities.
Second hour	Demonstration of advanced sound editing using <i>Audacity</i> (C1); ripping and burning audio CDs and MP3 discs (B6). Free time to work on hands-on activities.
Third hour	Demonstration of computer music activities (B7, B9) and video/audio slide shows (D1). Free time to work on hands-on activities.

List of Handouts

- A1 Tentative Time Schedule
- A2 Table of contents of the workshop CD-ROM
- A5 How to install the software
- B1 Recording sound with your computer's microphone input
- B3 How to Open and Listen to Sound Files
- B4 Downloading and playing back sound on your computer
- B6 Copying and burning audio CDs using Windows Media Player 10
- B7 Computer music activities: you don't have to be a musician to have fun with music
- B9 Buying Music On-line
- B10 Procedure for Adding Sound to the Alphabet Book Web sites
- B11 Talking Back(wards)
- C1 Mixing and blending Music with Audacity
- C2 Converting Vinyl Records and Tapes into Audio CDs
- C6 Reducing Noise in Digitized Analog Recordings using Audacity
- D1 Using Memories On TV 3.0 to make Video Slide Shows of your Digital Pictures
- E1 The Different Kinds of Disks
- E3 How to control what happens every time you insert a CD-ROM disk
- E4 Using the Common Tasks menu in Windows XP
- F1 Types of Sound and Music Programs
- F2 Six different ways to represent 50 seconds of music as a computer file
- F3 Sound and Music File Formats
- F4 Setting up a home theater system for movies and music
- G1 The Different Kinds of Disks (Table form)
- G2 How many photos and songs can you fit on your hard disk?

Digital Sound and Music

<http://home.swfla.rr.com/ohaver/SoundandMusic/>

Tom O'Haver

toh@umd.edu

<http://www.wam.umd.edu/~toh>

Mary O'Haver

ohaverma@verizon.net

<http://www.wam.umd.edu/~toh/mary.html>

Contents of the Workshop CD-ROM (Version 12)

Step-by-step activities

1. **[How to install the software](#)**. How to install all the software needed for the workshop activities.
2. **[Recording and Writing Audio CDs using MusicMatch](#)**. How to copy songs from an audio CD. How to burn a custom audio CD from your previously-copied music tracks.
3. **[Recording and burning with Windows Media Player 8](#)**. How to record and burn audio CDs with Windows Media Player 8.
4. **[Recording and burning with Windows Media Player 10](#)**. How to record and burn audio CDs with Windows Media Player 10.
5. **[Recording sound with your computer's microphone input](#)**. Connecting and adjusting a microphone for recording spoken comments. Checking the sound settings. Making high-quality recordings with *Audacity*.
6. **[Mixing and blending Music with Audacity](#)**. Combining songs into a continuous medley; Adding a vocal track (singing or spoken commentary) to a music file.
7. **[Converting records to audio CDs](#)**. How to convert vinyl records and tapes into audio CDs.
8. **[Cleaning up](#)**. Reducing Noise in Old Vinyl Disk and Tape Recordings
9. **[How to open sound files](#)**. How to Open and Listen to Sound Files.
10. **[Playback and Downloading](#)**. Playing back sound on your computer. Downloading sounds from Web pages. Recording Internet radio stations and other computer-generated audio.
11. **[Buying Music Online](#)**. Buying music online: CDs via mail order; Digital Music Services.
12. **[Computer Music Activities](#)**. Computer music activities: you don't have to be a musician to have fun with music. Arranging MIDI songs using Sweet MIDI Player. Computer Karaoke.
13. **[SoundAnd Music](#)**. Combined step-by-step workshop activities handout: copying songs from an audio CD onto your hard disk in compressed MP3 format; creating custom audio and MP3 CDs; using and adjusting a microphone; checking the sound settings; recording live sounds; recording from tape and record players; downloading sounds from the Internet; playing sounds using a computer sound player; putting sounds on Web pages; arranging MIDI songs; computer karaoke. There is also an **[alternative version of this handout](#)** organized for teacher workshops.
14. **[MemoriesOnTV](#)**: *Memories On TV* is a commercial (\$50) program that you can use to make professional-quality Ken Burns-type documentary video slide shows of digital pictures with background music and narration that can be played on a DVD player. (WordPad or MS Word document). The CD-ROM contains a fully-functional evaluation version of this software and two short examples of home-made video slide shows made with *Memories On TV* and *Audacity*: **[Snails](#)**, a science piece about snails,

and [In the Realms of the Unreal](#), about reclusive visionary artist and writer Henry Darger.

Additional Information Handouts

15. [Kinds of Compact Disks and Players](#). Kinds of Music Disks and Players: A brief explanation of several different types of Music Disks and Players. (PDF document) .
16. [The Different Kinds of Disks](#). Comparison of CD-ROM, CD-R, CD-RW, audio CD, DVD, and other types of disks computer use. (WordPad or MS Word document)
17. [AutoPlay](#). How to control what happens when you insert a CD into your computer's CD-ROM drive. (WordPad or MS Word document)
18. [Home Theater](#). Setting up a low-cost home theater system for movies and music: DVD player, television set, speakers, how to hook it up. (WordPad or MS Word document)
19. [Programs](#). Types of Sound and Music Programs. A brief explanation of several different types of programs used in working with computer sound and music. (WordPad or MS Word document)
20. [Formats](#). Sound and Music File Formats. A description of the different sound-based and note-based file formats commonly used for computer sound and music. (WordPad or MS Word document) For some examples of these different formats, see [Sound file examples](#) and [Other MIDI examples](#).
21. [Compare](#). Six different ways to represent 50 seconds of music as a computer file. (WordPad or MS Word document) An example of a short piece of music (J. S. Bach's Two Part Invention, #8), in several different sound-based and note-based file formats.

Software

22. [Windows software](#): A folder containing freeware, shareware, and demo software for sound and music applications for Windows computers. See the [ReadMe](#) file in that folder for a description of each program. See [How to install the software.rtf](#) for installation instructions.
23. [Mac software](#): A folder containing freeware, shareware, and demo software for sound and music applications for Macintosh computers.
24. [Sound visualization programs](#). A folder containing software for sound and music visualization, for PC and Mac.

Sound and music data files

25. [Sound file examples](#), [Other MIDI examples](#), and [Karaoke examples](#). Folders containing examples of sound and music files in various formats.
26. [Bird Songs](#). A folder containing a small collection of bird calls in WAV format, plus some shortcuts to Web sites with more bird information.
27. [Old Records](#). A folder containing original (unfiltered) digital recording of old vinyl records created using three different recording programs (MusicMatch, Cool Edit, and Analog Recorder) and saved in three different sound file formats (MP3, WAV, and WMA), for use in practicing noise removal techniques. See the handout ["Reducing Noise in Old Vinyl Disk and Tape Recordings"](#) for instructions.

Classroom Project Handouts

28. [TalkingBack](#). Talking Back(wards): test your pronunciation accuracy.
29. [ABC](#). Step-by-step procedure for completing the Audible Alphabet Book project.

30. **PPoint**. Adding music, sounds, and videos to Powerpoint presentations. How to inset an audio CD track onto a slide. How to record a voice narration into a slide show.
31. **Analyzing**. Do Birds Sing in Tune? Visualizing and Analyzing sounds, a step-by-step activity involving visualizing and analyzing bird calls using the *Audacity* program (Science, math, multiple representations, graphing).

Sample Projects and Web sites

32. **Sound and music Web sites**. A folder containing a collection of over 300 Internet shortcuts (links) to Web sites related to sound and music, examples of student projects, tutorials, and other useful ideas, including [Royalty-Free Music files to download](#), [Digital Music Services](#), [PowerPoint sound](#), [Greeting Cards with voice message](#), [Downloadable sound and music files](#), [Technology and software](#), [Technology and software](#), [Music education](#), [Musical instruments](#), [How sound works](#), [Animal sounds](#), [Sing-along and Karaoke](#), [Speech recognition](#), and [Text-to-speech](#).
33. **Web templates with sound**. A folder containing three templates for constructing Web sites with sounds on each page. See the [ReadMe](#) file in that folder for a description of each template. (Detailed instructions for each template are in the ReadMe files within each folder).
34. **Slide Show Idea Sampler**. A small Web site on the workshop CD-ROM illustrating some possible multimedia projects involving sound, based on the "Slide Show Template with sound" template.
35. **Example Projects on this CD-ROM**. A collection of multimedia projects including recorded sound, created by students and teachers. Includes [Famous Americans Biography Book Reports](#), [Electronic Self-portraiture](#), ["Old Yeller" Slide Shows](#), [The Double Life of Pocahontas by Jean Fritz](#) from Fairland Elementary in Montgomery County, MD, [Jessica's multimedia poem](#) (Quicktime movie) from Neolani School's [Move over Beethoven](#) project.
36. **Maryland ABC book** and **Florida ABC book**: Two partially-completed alphabet-book Web sites, based on the "Alphabet book template with sound", that are for you to complete by recording spoken comments for each letter. See instructions in [ABC.doc](#).
37. **Powerpoint Examples** folder. [Sounds in PowerPoint Presentation](#), a simple Powerpoint presentation that plays WAV, MIDI, and audio CD tracks; [How to play sounds across multiple Powerpoint slides](#) demonstrates how to keep a sound (like background music) playing over several Powerpoint slides.

Installing Software used in the Digital Sound and Music Workshop

Updating Windows Media Player (Media player, CD recorder and burner)

1. Connect to the Internet and launch *Windows Media Player* (**Start => Programs => Accessories => Entertainment => Windows Media Player**).

2. Click **Help => Check for Player Updates**. Follow the instructions on the screen.

Note: If your computer uses Windows XP, you should update to *Window Media Player 10*, which can copy audio CDs into MP3 format (older version copy only to WMA format).

Installing Audacity (Free sound recorder/editor, versions for PC or Mac)

1. Put the *Digital Sound and Music* CD-ROM into the computer's CD-ROM drive.

2. Open **My Computer => CD Drive => Windows Software => Audacity => audacity-win-1.2.4b.exe**. Alternatively, go to <http://audacity.sourceforge.net/> and download the latest version. Note: there is also a Macintosh version of Audacity in the Mac Software folder.

3. Click **Next, I accept the agreement, Next, Next, Next, Next, Install**.

4. Open **My Computer => CD Drive => Windows Software => Audacity** and copy **lame_enc.dll** to the Audacity program folder (**My Computer => Local Disk (C:) => Programs Files => Audacity**). (This step is necessary if you wish to save mp3 files).

Installing MusicMatch (CD recorder that converts songs to MP3 files)

1. Put the *Digital Sound and Music* CD-ROM into the computer's CD-ROM drive. Open (double-click or right-click and select **Open**) **My Computer => CD Drive => Windows Software => MusicMatch CD Recorder => mmsetup**.

2. On the "Welcome" screen, click **Next**.

3. On the next screen, click **Yes**.

4. On the "User Registration" screen, fill in your year of birth, email, and country (it need not be your real email address).

5. On the "Personal music recommendations" screen, click **No** and then click **Next**.

6. On the "Install Options" screen, click **Custom** and then **Next**.

7. On the "Choose installation location" screen, click **Next**.

8. On the "Choose music folder location" screen, click **Next**.

9. On the "Setup radio cache" screen, click **No** and then **Next**.

10. On the "Select Program Folder" screen, click **Next**.

11. On the "MUSICMATCH shortcuts" screen, click **Next**.

12. On the "Filetype Registration" screen, *un-check all the boxes* and then click **Next**.

13. On the "Setup complete" screen, un-check "Run MusicMatch".

14. Close all the open windows.

15. To run *MusicMatch*, right-click on the **MusicMatch JUKEBOX** icon on the desktop, or click **Start => Programs => MusicMatch => MusicMatch Jukebox..**

Installing WinKaraoke (computer karaoke player). Windows only

1. Put the *Digital Sound and Music* CD-ROM into the computer's CD-ROM drive. Open (double-click or right-click and select **Open**) **My Computer => CD Drive => Windows**

Software => WinKaraoke program => setup.exe.

2. On the next screen, click **OK**.
3. Click the big square button with the picture of a computer on it.
4. Click **Continue**
5. Click **Yes**.
6. Click **OK**. The installation will complete.
7. This step copies the Karaoke example files on the CD to the WinKaraoke program folder, so you can play these karaoke files without having the CD in the computer. Open **My Computer => CD Drive => Karaoke examples**. Click **Edit => Select All**. If your computer has Windows XP, click "Copy the selected items" under File and Folder Tasks on the left, then in the **Copy Items** box navigate to **C: => Program Files => Winkaraoke Player 1.5**, then click **Copy**. If you are *not* using Windows XP, you will have to drag and drop the karaoke example files from the CD into **C: => Program Files => WinKaraoke Player 1.5**.
8. To run *WINKaraoke Player*, click **Start => Programs => WinKaraoke Player 1.5 => WinKaraoke Player 1.5**.

Installing *Sweet MIDI Player* (MIDI player and editor for PC and Mac)

1. Put the *Digital Sound and Music* CD-ROM into the computer's CD-ROM drive. Open (double-click or right-click and select **Open**) **My Computer => CD Drive => Windows Software**.
2. Drag the "Sweet MIDI Player" folder to your desktop.
3. To run *Sweet MIDI Player*, open the "Sweet MIDI Player" folder and open "Swmip132.exe".

Installing *CoolEdit* (alternative sound recorder/editor) Windows only

1. Put the *Digital Sound and Music* CD-ROM into the computer's CD-ROM drive. Open (double-click or right-click and select **Open**) **My Computer => CD Drive => Windows Software => CoolEdit sound editor installer => c96setup**.
2. On the "Welcome" screen, click **OK**.
3. On the "Select directory" screen, click **OK**. (If you get an error message, click **Ignore**).
4. On the "Audio file associations" screen, click **No**.
5. On the "Peak file..." screen, click **No**.
6. On the "Temporary directory" screen, click **OK**.
7. On the "Start menu" screen, click **Add**.
8. On the "Run now?" screen, click **No**.
9. Close all the open windows.
10. To run *CoolEdit*, click **Start => Programs => Syntrillium => Cool Edit 96**.

Note: You only need to install these programs *once*, for each computer you want them on. After they are installed, you can use them without re-installing. Once these programs are installed, you do not need to have the *Digital Sound and Music* CD-ROM in the computer to run the programs, unless you want to open one of the sound files on that disk.