

Attack of the PODPEOPLE



Asilomar, December 1 2007

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What is a podcast?

A *podcast* is just a way of publishing audio files on the internet. What makes it a podcast is that users don't have to check your website for new episodes. They can subscribe (via an RSS feed) and receive new episodes automatically. Wikipedia has a great article on podcasts. A *video podcast*, or *vodcast*, is a podcast that uses video. An *enhanced podcast* is an audio podcast that has pictures associated with it, like a slideshow. Unlike the radio, a podcast is on-demand, can be played and replayed anytime. There is a huge variety of topics that you can listen to.

Three basic ways to use podcasts in the classroom:

1. Have your kids listen to them

There are tons of content-rich podcasts your kids can listen to to enhance your curriculum.

2. You can listen to them

You can't always travel to a conference, but you can find out about the latest science, technology, or pedagogy while you're on the treadmill - professional development on a shoestring!

3. Make your own

You can use podcasts to give review sessions, and your kids can create podcasts to enhance understanding of material.

1. Listening to podcasts



Stuff to think about:

- You can enhance your own professional development by listening to math & science news or lectures. Many universities offer their lectures in podcast format, and there are podcasts on teaching as well.
- There is podcast content that is not appropriate for students. Exercise good management and consider banning podcasts with the “explicit” label in iTunes (in Preferences – Parental Control).

Good science, math and education podcasts:

- **Mathgrad:** Math in everyday life from a mathematics grad student, a nice little podcast: <http://www.mathgrad.com/>
- **Math Mutation:** Weird corners of mathematics. <http://www.getapodcast.com/podcast3206.aspx>
- My **nanotechnology podcast** (SmallTalk) is at <http://www.nisenet.org/podcasts>
- **And our **Science Teaching Tips** podcast is at <http://scienceteachingtips.podomatic.com/>
- Kidcast – Everything you ever wanted to know about podcasting in the classroom, and tons of examples. <http://www.intelligent.com/blog/>
- **60 second science** from Scientific American, will just take a minute. They also host **Science Talk**. <http://www.sciam.com/podcast/>
- Check out the **Education Podcast Network** at <http://www.epnweb.org> for a slew of educator–related and –created podcasts.
- **Podcast for Teachers** at <http://www.podcastforteachers.org>, provides weekly conversations about education and technology.
- ****WNYC Radiolab** Smart, beautifully produced 1–hour shows about science <http://www.wnyc.org/shows/radiolab/>
- **Point of Inquiry**. Smart thoughtful interviews about the role of science in society and the importance of rationalism. Really, they’re fascinating! <http://www.pointofinquiry.org/>
- ****NOVA Science NOW**. Smart 5 minute science candy <http://www.pbs.org/wgbh/nova/sciencenow/>
- ****Krulwich on Science**. Fun and quick little gems about science <http://www.npr.org/templates/story/story.php?storyId=5500502>
- There are a huge number of **science news** oriented podcasts. Some from the bigger media outlets are:
 - <http://www.thenakedscientists.com/>
 - <http://www.slackerastronomy.org/wordpress/>
 - <http://www.scienceupdate.com>
 - <http://www.newscientist.com/podcast.ns>
 - <http://www.nature.com/nature/podcast/>

Podcast directories (for finding podcasts)

iTunes music store (access through iTunes software)

<http://www.podcastalley.com/>

<http://www.podcastingnews.com>

<http://www.podcastbunker.com/>

<http://www.odeo.com>

<http://www.podomatic.com>

<http://www.podshow.com>

The finer points of listening to podcasts

You may find podcasts listed on sites like Odeo, Podomatic, Podshow, or many other hosting sites and listen directly on the web, or download and subscribe through software like iTunes.

You can subscribe several ways:

1. Through iTunes store. Click on “podcasts” in the left column of iTunes. Click “podcast directory” on lower right hand corner. You can then “browse” or “power search” (upper right hand corner) or look through their featured podcasts.
2. Drag their RSS icon into iTunes. If you find a podcast somewhere other than iTunes, most pages have an orange RSS icon on their page. You can just drag that icon into the podcast window in iTunes and it will subscribe you.
3. Type in the URL. In the “Advanced” tab in iTunes menu bar, choose “subscribe to podcast.” Put in the URL for the RSS feed for that particular podcast.
4. Click on a “subscribe” link on their website. Many podcasts will have a “subscribe via iTunes” link which you can click, and it will open up iTunes on your computer.

2. Make your own podcasts



Make your voice heard

Kidcast

I *highly* recommend listening to some of Dan Schmit's "Kidcast", about using and creating podcasts in the classroom. His book is in the library.

<http://www.intelligent.com/blog/>. Here is audio of Dan giving an overview of classroom podcasts: <http://edcommunity.apple.com/ali/item.php?itemID=9973>

Stuff to think about:

- Creating a podcast is a good lesson in communication, and puts the student in the role of being a teacher. It requires kids to organize information and then present it in a meaningful way. Writing across the curriculum!
- Kids can be more motivated to create a program that could be heard across the world, rather than just an assignment for the teacher.
- Researching a topic, recording it, producing it, and playing it, all reinforce concepts for students.
- Creating a podcast does take time. Start small, and create something you think you can maintain.
- Consider divisions of labor for student created podcasts (writer, editor, post-production, etc.)
- When recording people, be sure to get permission to record them (you may create a permission form).
- Your students should use a stage name and not give out private details about themselves, since podcasts are publically available.
- You should spend more time on developing the content (80%) than on production (20%). Good content makes up for poor production, but not vice versa. And plan your podcast well. Good audio doesn't just happen, it's organized in advance.
- Think about content that lends itself well to audio, such as music, personal stories, drama, history, and other narratives.
- Don't podcast for the sake of podcasting – see how it fits into your curriculum.

Some ideas for your podcasts

- Create test review podcasts – students can listen on their own time, and replay parts they didn't get. And you sound just as enthusiastic the 70th time as the 1st.
- Students can interview people who use math in their careers
- Drama. Create a skit to perform on podcast.
- Discuss impact of math on society, or how history of math has shaped human history
- Explore the mathematics of digital audio technology – acoustics, sound compression, etc.
- Pet-casts give a chance to talk about biology, nutrition, etc., which can be linked to mathematics
- Collaborate with other classrooms via podcast
- Science or math in everyday life
- Students can use *phonecasting* to phone in observations or record reflections on a topic
- Submit a podcast to Where in the World – a worldwide geography quiz show – <http://www.intelligent.com/where/>
- This day in math history
- Sports news show or sportscaster voice-over, exploring statistics or the mathematics of the physical laws governing the sport

Basic steps to make a podcast:

1. Record. You may record directly into Audacity or Garageband, or use an external recorder and import your audio. You can also record via the web on Odeo at <http://studio.odeo.com/create> but you can't edit it there.
2. Edit. Use your audio editing software to cut out anything you don't want.
3. Mix. Use your audio editing software to add music, make volume fades, etc.
4. Compress to MP3. This makes your audio file smaller. We use mono, 96 kbps at 44.1 kHz sample rate.
5. Upload your file.
 - a: If you're using a host like podomatic.com or podbean.com, then you need to sign up for an account. Once you have an account and have signed in to podomatic.com (for example), click on "My Podcast", then "Post an Episode". Fill in the title and description of the episode. Then click "Import", then "Browse" to find the file you just made. Click post and your episode will go online.

b: If you are not using a host, you will need to upload the MP3 to your server, and create or update your own RSS file. For information on creating RSS files, go to <http://www.apple.com/itunes/store/podcaststechspecs.html>, or have Podcast Maker make it for you, <http://www.potionfactory.com/podcastmaker/> and validate it using [Feedvalidator.com](http://feedvalidator.com).

6. List your podcast on iTunes (you only need to do that once).
 - a. Launch iTunes.
 - b. In the left navigation column, under Inside the Music Store, click on the Podcasts link to go to the Podcasts page.
 - c. In the left column of the Podcasts page, click on the Submit a Podcast link.
 - d. If you want to give people a link on your website to subscribe to your podcast via iTunes, find your podcast in the iTunes store. Right-click on the image that goes with your podcast and “copy iTunes store URL.” That link will automatically open iTunes and bring people to your podcast page in iTunes.

Audio editing software:

- Audacity (FREE for Mac or PC) <http://audacity.sourceforge.net/>
- Audacity manual: <http://audacity.sourceforge.net/manual-1.2/>
- Advanced Audacity tips: <http://www.audacityguy.com/>
- Garageband (NOT FREE, Mac only) manual: http://manuals.info.apple.com/en/GarageBand2_GettingStarted.pdf
- Apple Garageband support page: <http://www.apple.com/support/garageband/>
- Apple Discussions: Garageband (a great place to find out how other people have solved your problems) <http://discussions.apple.com/category.jspa?categoryID=127>
- Advanced Garageband tips: <http://thehangtime.com/gb/gbfaq2.html>

Hosting your podcast

- We recommend: <http://podomatic.com>
- Ours is at <http://www.scienceteachingtips.podomatic.com>.
- We also liked <http://www.podbean.com/> or <http://clickcaster.com/>
- And many people use <http://www.odeo.com>, <http://www.podshow.com>, or <http://www.wordpress.com>.

Podsafe music directories (for finding music that is license-free, and legal to put in a podcast)

- <http://www.podsafeaudio.com/>
- <http://music.podshow.com/>
- <http://www.garageband.com> (only some are podsafe)
- What is podsafe music? <http://en.wikipedia.org/wiki/Podsafe>
- Most podsafe music is licensed under the Creative Commons, which allows us to use music as long as we give attribution:
- http://en.wikipedia.org/wiki/Creative_Commons
- <http://creativecommons.org/>

Some other useful sites:

- Search the web for sound samples: <http://www.findsounds.com/>
- And some free sound effects: <http://www.sounddogs.com/>
- Education Podcast Network (directory of educator podcasts): <http://www.epnweb.org>
- Podscope -- Search within audio content on the web for certain content (an audio search engine): <http://www.podscope.com>
- *Phonercasting* is a way for students (or anyone) to record comments via phone and get automatically put into a podcast. This can be a way for students to reflect on a topic, or record observations. Phonercasts are done for free at <http://gabcast.com/> and <http://www.gcast.com>

How to Record and Edit with Audacity (for Mac or PC)



RECORDING:

1. Plug in your USB microphone, to your one of your computer's USB slots. (You may also use your internal microphone, but the quality isn't as good). Make sure it's been recognized by following the steps below.
 - a. *In a PC, go to the Start menu and select "Control Panel" then "Sounds and Audio Devices". Click the "Audio" tab and then under "Sound Recording" choose your mic from the dropdown menu. Then click "Apply".*
 - b. *In a Mac, go to System Preferences - Sound. Choose "Input" and make sure the USB mic is selected. This is also where you may increase the microphone input volume.*
2. Load up Audacity, by clicking on the Audacity icon in your list of programs. *Make sure it's recognized by choosing File - Preferences and select "Audio I/O". Make sure your USB mic is selected for input.*
3. Record your voice, by pressing the red record button (the red circle near the top of the Audacity window). It should now be recording. You should see a waveform appearing and the red and green level meters going up and down. Talk into the microphone and if your audio levels are bouncing up into the red area you are too close. When you want to stop recording press the square stop button at the top left.

NOTE: If your recording level is too high (distorting) or too low (very quiet) you can adjust the levels by moving the slider next to the microphone icon.

EDITING:

1. Listen back to the recording and decide which parts you want to keep and which parts you want to delete. You can listen by pressing the green triangle (the play button) or alternatively by pressing the spacebar.
2. Delete the audio you don't want. Highlight the first chunk of the audio wave you don't want to keep by clicking and dragging across that piece of audio. You can listen to just the highlighted audio by pressing spacebar. Press backspace to delete the highlighted audio. Listen back to your edit and check it worked, then continue deleting other bits of audio you don't want. Remember you can always undo an edit by pressing the "Ctrl" and the "Z" keys simultaneously.
3. Compress your audio. Go to the "File" drop down menu at the top left and select "Export as MP3". Give your MP3 file a name and save it to the desktop or create a folder for it. You are now ready to upload your MP3 audio file to the web. *NOTE: You must have downloaded the LAME MP3 encoder in order for Audacity to do this, downloadable separately at <http://audacity.sourceforge.net/download/>*

ADDING MUSIC

1. Import Audio by going to the "Project" drop-down menu and selecting "Import Audio".
2. Find the music file you want. It may be on a CD or as a file on the computer.
3. Put it into the original track (optional). The music will open in a new track, but you can incorporate it into the original track. First highlight the whole music wave form, then cut it by pressing Ctrl and X simultaneously. Then click where you want to paste it and press Ctrl and V simultaneously to paste it.

How to Record and Edit with GarageBand



RECORDING:

7. Click on the guitar icon, to start GarageBand.
8. Select “New Music Project”. In many ways the music projects are simpler than podcast projects, so we’ll start with one of them. A podcast project will allow you to create *an enhanced podcast*, with a photo slideshow.
9. Name your project in a new folder. When prompted, give your project a name, and put it in a new folder. Keep all your audio files, and your Garageband project, in this folder.
10. Plug in your USB microphone, to your one of your computer’s USB ports.
11. Make sure your USB Microphone registers in GarageBand. Go to the “Garage Band” drop-down menu and select “Preferences...”. Under the “Audio/Midi” tab make sure that the “Audio input” is “USB Microphone”.
12. Turn off the metronome and snap to grid. Go to the “Control” drop-down menu and select “Metronome” to remove the check next to it. Likewise, still in the “Control” menu select “Snap to Grid” to remove the check.
13. Create a new track. Go to the “Track” drop-down menu and select “New Track” then “Real Instrument” and “Create”. This will create a new track called “No effects.” You may also wish to close the “Grand Piano” keyboard, and to close the Track Information screen (command-I).
14. Prepare your new track to record. Click on the speaker symbol on your new track, labeled “No Effects”. This will highlight that track. Then click the little circle under the words “No Effects” and the circle should turn red. That means this track is ready to record.
15. Check your levels. Speak into the microphone. Watch the green bar on the left-hand side of the track move as you speak. Speak at a volume so this bar is within 50–75% of the maximum, but never goes into the red. Adjust your distance from the microphone.

16. Record your voice. Lower down your garage band window, below your track, is a larger red circle button . This is the record button – press it and speak into the microphone. It should now be recording. You should see a wave form appearing in the track you created. When you want to stop recording press the record button again (or alternatively press the space bar). You may need to press the “play” button to stop the playhead from moving.

EDITING:

1. Listen back to your recording. Do this by clicking the rewind button to get you back to the beginning and then pressing the play button. You can stop playing by pressing the spacebar.
2. Decide which bits of audio you want to delete. Listen back to the piece again and decide what you want to keep and what you want to delete.
3. Mark the start of your edit. Select the portion of audio by clicking on it, so it changes to dark purple. Move the red vertical line (the “play head”) to the point where you want to delete audio. Do this by clicking and dragging on the triangle at the top of the play head to that point. Press the Apple key and the “T” key simultaneously in order to split the waveform in 2. (Fig 1)

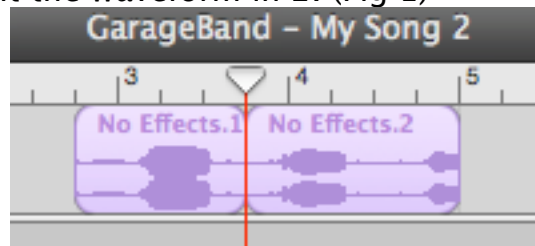


Fig 1

4. Delete the bits you don't want. Now that you have split the wave into two you can highlight the half that you don't want to keep by clicking on it. If both portions are highlighted, click elsewhere on the screen to deselect both, and *then* click on the half you want to delete. Once it is highlighted press “backspace” to delete it. (Fig 2 and 3)

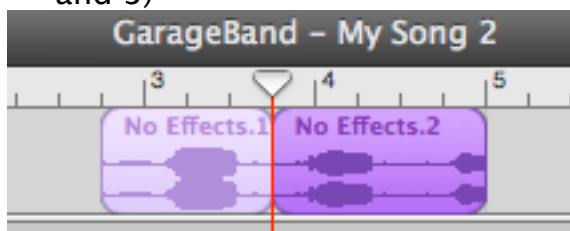


Fig 2

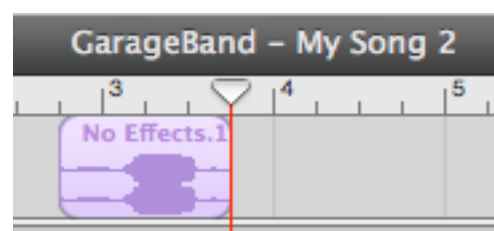


Fig 3

5. Make sure the edit sounds right. Move the play head back and listen to the piece to check it sounds the way you want. If it doesn't, you can adjust your edit by dragging the edges of your wave form in or out to trim it (Fig 4).

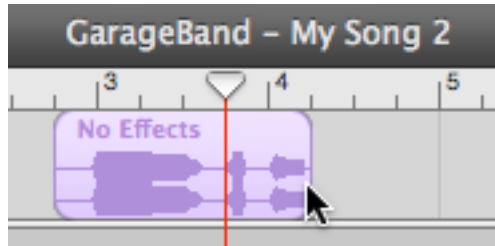


Fig 4

EXPORTING:

When you are happy with your piece you are ready to export it as an audio file.

1. Go to the "Share" menu and choose "Export Song to iTunes".
2. This will open your song in iTunes. To export it to MP3 format go to the "Advanced" menu in iTunes (or right-click on the file) and select "Convert Selection to MP3".
3. Now we need to find the MP3 File. Right click (or Ctrl Click) on the song in iTunes and choose "Show in Finder". Choose the file with the .mp3 extension. This is ready to upload.

Note: Your MP3 conversion settings are in iTunes - Preferences - Advanced - Importing. Make sure it says "Import Using: MP3 encoder." Click "Setting: Custom" and you can change your settings. We use 96 kbps, mono, at 44.1 kHz.

ADDING MUSIC OR OTHER AUDIO FILES TO YOUR PODCAST:

There are 3 ways to add music into your project: using the jingles supplied with GarageBand; via iTunes; or via Finder.

1. GarageBand Jingles.

- a. Create a New Track by going to the "Track" drop-down menu and select "New Track" then "Real Instrument" and "Create".
- b. View the "Loop Browser" by clicking on the button which looks like an eye at the bottom left of GarageBand (Fig 6).

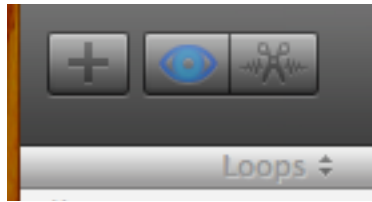


Fig 6

- c. Click on the podcast icon at the bottom of the loop browser. (Fig 7)



Fig 7

- d. Choose “Jingles”, then choose a style of jingle (Cinematic, Country etc.) , and then which jingle you want from the right-most pane.
- e. Drag that jingle onto the new track you created, at the point you would like it to go.

2. From iTunes.

- a. Create a New Track by going to the “Track” drop-down menu and select “New Track” then “Real Instrument” and “Create”.
- b. Then click on the media browser button, which is at the bottom right with pictures of a musical note and film on it. (Fig 8)



Fig 8

- c. The Media Browser will appear. Select “Audio” in the media browser, then select iTunes.
- d. Select the song you want from iTunes and drag it to the new track you created, at the point you would like it to appear.

3. From Finder

- a. Create a New Track by going to the “Track” drop-down menu and select “New Track” then “Real Instrument” and “Create”.
- b. Open Finder and find the music file you are after. Drag it to the new track you created.