**Activity Overview**

In this activity we will listen to a portion of the BPL podcast *Page Flippers Take on the World*, and then read a section of a book about the science of music. Patrons will then have the opportunity to make their own mini banjos and experiment with manipulating the sound.

**Learning Objectives**

At the end of this session participants will be able to . . .

- Talk about how sound is created
- Manipulate rubber bands to change the pitch of a string instrument
- Generate ideas about how other craft instruments can be made

**Materials Needed**

- Optional: A book about the science of sound (like [this one](#)) with a reading section prepared
- Speaker, and capacity to play section of *Page Flippers*
- For the mini banjo craft:
  - All kinds of rubber bands
  - Duct tape
  - Metal jar lids and popsicle sticks (if making mini banjos) or …
    - Cardboard boxes of different sizes or plastic containers used for storing other items in the library (if jar lids are too difficult to collect)

**Setup**
• Identify which section of the book to read, if using
• Gather materials for your craft
• Create a list, display, or small book bundles on animals for your patrons to peruse. You can use this list as a starting point: https://www.bklynlibrary.org/search?booklist=584735

Podcast Clip

• Find and charge (if necessary) your speaker and the device from which you’ll play the Page Flippers snippet.
• The clip will appear as a “bonus” episode on the podcast feed (you can find it on Spotify, Apple Podcasts, Stitcher, RadioPublic, Google Podcasts, etc.) or you can preview the clip here: Page Flipper Bonus Clip - Musician.mp3
• Clip summary: Sheneatha’s friend Starr (a pigeon) is stressed out because she’s stuck in the library and can’t find her way out! Page Flipper Rafael remembers that scales can have a calming effect, so he uses his cello to play scales for Starr to calm her down. Then he figures out how to Starr out of the library using sound!

Process

• Talk about pitch – can patrons hum or sing a high note? A low one? Introduce the idea of vibration creating sound.
• Demonstrate how to make a mini banjo (video here).
• While they are making their craft, you can play the Page Flippers clip.
  o Follow up questions: What was your favorite part? What did you notice? How did Rafael help the pigeon find her way out of the library? Can you hum an ascending scale? Descending?
• Have kids experiment with tightening and loosening the rubber bands (bands can be doubled up on jar lids) and seeing what happens to the sound.
  o There are tons of ideas for sound experimentation in Rubber band banjos and a java jive base: Projects and activities on the science of music and sound by Alex Sabbeth
  o Page 22-23 has a section on how string tension impacts pitch, and you can refer to this when answering questions and prompting to try new ways of playing the rubber bands
• Invite everyone to check out books about music. Banjos are theirs to keep (unless you used plastic containers from around the room – then ask them to clean up their materials!)
• Have Page Flipper postcards, flyers, bookmarks, or other handouts on hand to give out to participants.

Scaling

• To Scale Younger: Focus more on the idea that vibrations create sound, not so much on pitch manipulation.
• To Scale Older: You could make a shoe box guitar (instructions on page 26 of *Rubber band banjos and a java jive base: Projects and activities on the science of music and sound* by Alex Sabbeth). Kids can press their fingers down to shorten the length of the rubber band.