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**Connecting the Optron Mini to FL Studio as a MIDI instrument Part 2**

**Category:** Technology, arts

**Overview:** Students will build off of the previous activity by playing more advanced music and exploring software settings.

**Suggested time:** 50 minutes

**Materials Needed:**

• Computer

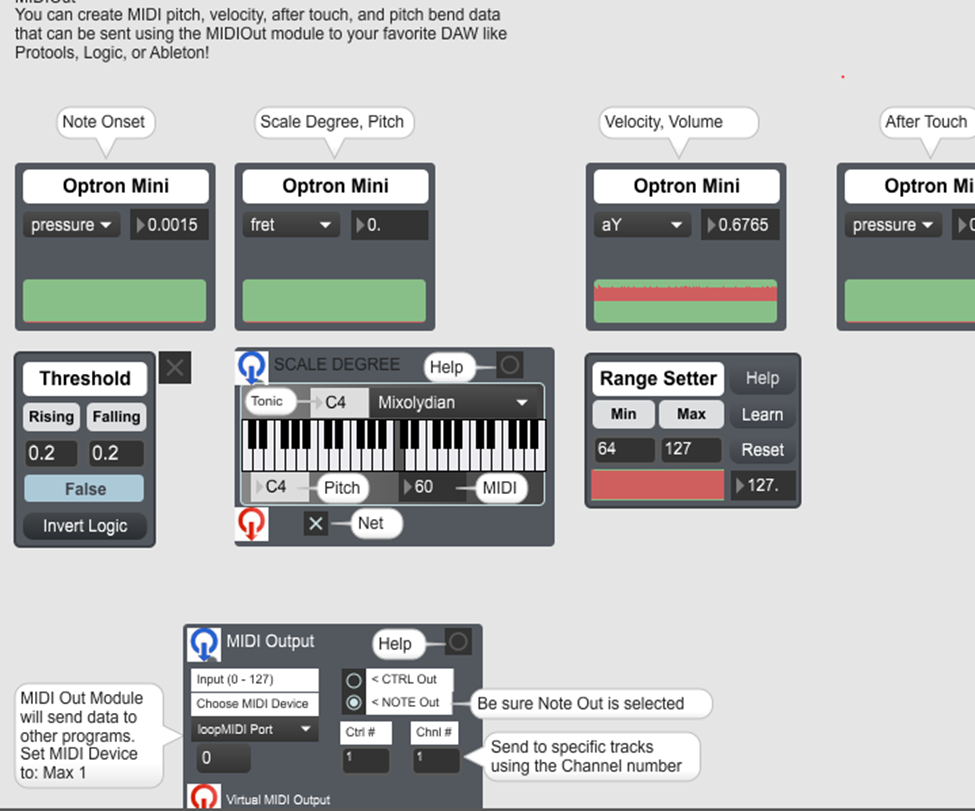
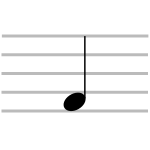
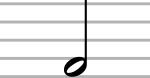
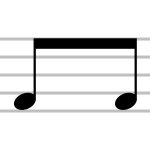
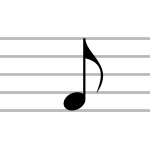
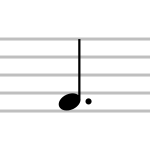
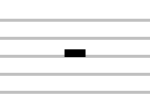
• Optron Mini

• FL Studio trial software

• Max 8 software

• Optron software

• LoopMIDI software

* **Musical terminology**
  + **Scales:** A group of notes that are arranged in a specific order that sound a certain way and give off a certain feeling. Songs are written in a particular scale, which holds all of the notes that will make up the song. This influences how the song will sound and make the listener feel.
    - **There are various types of scales**. The most common are major (happy sounding), minor (sad sounding), or natural (neutral sounding). There are many more specific and particular types of scales, as well as scales used traditionally in different ethnic music styles (You will see some of these soon in the lesson).
  + **Octave:** The range on a scale from one note up to the next same note at a higher frequency.
    - **The different types of octaves are** Ionian (from C to C), Dorian (D to D), Phrygian, (E to E), Lydian (F to F), Mixolydian (G to G), Aeolian (A to A) and Locrian (B to B).
  + **Tonic:** The note that any particular scale is based on. This is the first note at the beginning of the scale. On the Optron Mini, this will be when you have no fingers on the digital fret board. This is similar to the open string on a guitar.
* Now that we understand what scales and octaves are, we can change them to our liking on Max 8!
  + From the “Hello World” window, open “External DAW MIDI Instrument Tutorial” window.
  + The red circled box below will be where you can change the scale that you are playing on the Optron Mini (click it and a dropdown list will display showing you all of the different scales you can choose are).
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  + Just to the left of this, you can alter the octave you play by selecting the key that the open note on the Optron Mini will play (click and drag to adjust this one).
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  + Try and set up your own scale and play around with it.
* Notation in sheet music: The next song you will play uses modified sheet music. In order to understand what you are looking at; I will lay down some general information for you.
* **Musical symbols**
  + **A quarter-note**
  + **a half-note (equivalent to two quarter-notes in length)**
  + **an eighth note (half of a quarter-note) The one to the right is when there are two in a row.**
  + **a dotted quarter-note (one and a half quarter-notes, or 3 eighth notes)**
  +  **A 2 quarter-note long rest where you do not play anything**
  + **An eight-note lone rest where you do not play anything**
  + **This symbol is for piano players to release a pedal but disregard it when you see it later.**
* Next, we are going to bring the challenge up a notch.
* Change the number of digital frets to 9
* Open the “External DAW MIDI Instrument Tutorial” window
* By clicking and dragging your mouse down, change where it says “A4” to “C4”. This will change what the note is when you have no fingers on the digital fret board.

Graphical user interface

Description automatically generated

* Click on the dropdown menu on Scale Degree where it says “Ionian (major)”, and select “Mixolydian”

Graphical user interface

Description automatically generated

* Try to play “Las Mañanitas” with the color-coded sheet music provided. Take note that this song is in ¾ time instead of the usual 4/4 time, so each measure will have 6 eighth notes instead of 8.
* Here is the song:

Shape

Description automatically generated with medium confidence

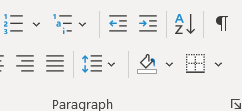
* **Question: How does changing the type of key you are in affect the notes you can play?**
* **Question: How does playing in certain keys make you feel?**
* Now try and make your own song with the Optron Mini. You can use the tables in word to do this

Graphical user interface, application, Word

Description automatically generated

* + Because of limitations, you want your number of frets to be eight or less.
  + Make a table eight wide by however many frets you have. I will give an example of a table with 5 frets:

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* + Each row represents one note being played. You can put in the color by right-clicking a box and using the paint bucket to change its color
    - 
  + Base these colors off of what the Optron Mini displays for each note you play.
  + You can put your song either here on this document, or you can make another word document and put it there.

**Outcome goals:**

* **Basic imputing of values into a digital system, and evaluating the results**
* **Basic understanding of FL Studio**
* **General understanding of how to play Optron Mini**
* **Model how computer hardware and software work together as a system to accomplish tasks**
* **Generate musical ideas**
* **Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.**

Works Cited:

Sheet music- <http://www.tubescore.net/2012/04/las-mananitas-sheet-music-for-violin.html>

Outcome goals- https://www.k12.wa.us/student-success/resources-subject-area/computer-science/computer-science-k-12-learning-standards