

Lesson Ideas

Beaterator as a learning tool for musicianship, music theory, and composition

Dubspot, dubspot.com

Welcome

Music tools, no matter how powerful, are still simply tools. Providing a compelling, portable, advanced music workstation for students can be an opportunity to engage them in music making in new ways. Students can develop both traditional musicianship and techniques for music recording and arrangement in order to be more expressive with sound technology.

In this set of instructional outlines, we'll explore some ideas for how you might build a lesson around the tool that emphasizes production and theoretical/musical skill building.



Getting Started

Once you've introduced the tool, stick to Beaterator's most advanced user mode.

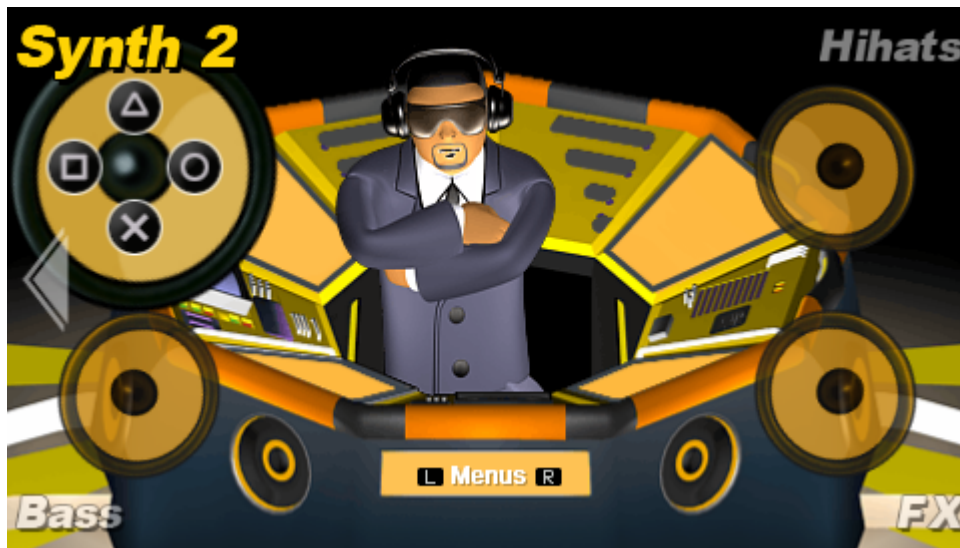
Hands on

To introduce Beaterator, try simple sample triggering.

Start the application Beaterator application. Pressing any button will skip the title animation. Beaterator should next load stored preferences.

Take note of the keys on the PSP, in particular the right and left "shoulder" buttons on the top of the unit, labeled R and L for Right and Left. There are eight primary buttons, the arrows of the directional pad or "d-pad" on the left-hand face of the PSP, and the four action buttons on the right-hand side.

Try selecting "Live Play" mode from the main screen. Live Play contains four different loop playback slots, navigable by using the left and right d-pads. The buttons turn loops' audio output on and off. (Loops play continuously; pressing the buttons mutes or unmutes them but does not re-trigger playback from the beginning of the sample.)



Using the L button, try loading other loops, by navigating the factory library of sounds.

Using the R button, try recording a quick arrangement.

"Live Play" mode is a way to quickly audition loops and could be used for live performance. However, in

order for students to focus on creating their own content, you'll want to emphasize the Song Crafted view. From "Live Play," choose R > Go to Studio to bring up Studio Session. Studio Session is a more sophisticated view of loop triggering, but we want to actually create and materials from scratch. Choose SELECT to switch to Song Crafter. (From the main menu, choose Studio Session > SELECT to go directly to Song Crafter when loading Beaterator.)



✓ **Tip:** full documentation for Beaterator is available from the menu; access the Beaterator menu using the right shoulder button, then scroll right to the Help menu, indicated by a question mark. The reference guide is both a manual and a collection of tips.

Questions for students

What's the impact on the music when everything is playing at once?

What's the musical effect of taking things *out of* the arrangement in Live Play mode? How can silence, or the absence of a particular element, help shape the form of the song?

Form and loops

The presence of loop tools doesn't have to mean repetitive music – it can be a chance to talk form.

Objective

Help students connect music technology with musical literacy and fundamentals of theory and composition. Use loops as an opportunity to talk about musical form and arrangement, to help students begin to think compositionally.

Hands on

Have students load loops (or, ideally, time permitting, record some of their own).

In this lesson, and all others, first start a song in Song Crafter mode. You'll know you're in the right place if the menus say “Song Crafter” and you see a display with tracks displayed in a vertical list and a ruler displaying measures at the top of the screen.



To select loops, choose the loops menu from Song Crafter using the \boxtimes button.



Discuss how time is divided into blocks in music. On Beaterator's Song Crafter view, measures are displayed in groups of four.



By loading loops (via the Loops Menu) and placing them (using the X button), have students experiment with producing different forms using their beats. To begin, try forms like A-B, A-B-A, and A-B-A-B-C-B, even just using an example of one bar at a time.

Discuss popular music forms. Compare a 12-bar blues ("Kansas City," Leiber and Stoller) and 16-bar blues ("Watermelon Man," Herbie Hancock). Discuss the 32-bar form (example: "Rhythm-A-Ning," Thelonious Monk). Have students analyze the structure of songs they know. (Depending on the level of the students, you could elaborate on the "Rhythm Changes" progression on which many jazz standards are based, as derived from Gershwin's "I Got Rhythm.")

Try creating loops of different lengths, as introduced in the previous lesson. For instance, to construct a 12-bar blues, create loops with a length of four bars.

Questions for students

Think of a popular song. What's its basic form? Which part is a verse, a chorus, or a bridge?

How many bars are in the song's basic structure? Try counting bars out loud.

Assignment

Have students try compose a 32-bar AABA form using pre-existing loops in Beaterator.

Constructing Rhythm

Inside a single rhythmic pattern, you can find some of the mechanics of what makes a song move forward.

Objective

Understand metrical structures, and how syncopation produces the feel of popular music.

Hands on

Create a new drum loop from scratch. Choose Loops Menu > New Loop > Drum Loops > New Loop – Load a Drumkit > All Rockstar Drumkits > Rock Kit 01 (or a kit of your choosing). Select a 1-bar loop.



First, examine the metrical grid in the Drum Crafter – Loop Edit screen. Note that the loop is subdivided:

- Divided in four: quarter note (the lines in the Loop Edit screen, marked by beat number in 4/4 as 1, 1.2, 1.3, and 1.4)
- Divided in sixteen: sixteenth note (the small hash marks in Loop Edit)

Have the students find other metrical values:

- Whole note: the first position in the bar
- Half note: at 1, 1.3
- Eighth note: every second hash mark

Compare the graphical notation in this view with traditional music notation and flags.

Now, with the basics of rhythm and the ability to look at the rhythmic grid graphically, we can explore what makes a rhythm sound the way it does. Begin by having students construct a non-syncopated rhythm, placing bass drum hits on the quarter-note beats, with the X key.

Using the \square key, you can remove events, which is handy for creating rhythmic variations. Leave the downbeat bass drum, but have students try shifting the other hits to off beats. (A common syncopated backbeat pattern is illustrated here. The hats fall on the downbeats, while the kick plays a pattern that emphasizes the strong beats on 1 + 4, and weak beats in between.)



Have the students look graphically at the difference between the syncopated and unsyncopated versions of the patterns.

Discuss the concept of the “backbeat” in popular music and jazz. Out loud, practice counting on both the downbeats and off beats or “back beats”:

ONE and TWO and THREE and FOUR and

one AND two AND three AND four AND

Then, practice with the metronome on, hearing the beats of the metronome as “AND” rather than the on-beats. (It may help to have students say out loud, “one, two, three, four” on the beats between the metronome ticks, so that the metronome is counting the “and” beats.)

For more advanced exploration, you might examine the “Amen Break,” the rhythmic pattern that has influenced various styles of hip hop and electronic music and been directly sampled in many songs. A

rough transcription of a break appears here.



Ask the students to observe how the break creates a sense of syncopation, by producing a rhythmic expectation, then deviating from that expectation.

✓ **Tip:** An easy way to create rhythmic or melodic variations is to choose Loop Menu, scroll to the track you want, select a loop, then choose Clone & Edit.

Questions for students

Think of a familiar song that makes you want to tap your toes or dance. What beats does its basic underlying rhythm emphasize? Which downbeats and which offbeats feel the strongest?

Try clapping a backbeat pattern.

Assignment

Compose a set of drum loops, an A variation and a B variation, of one bar each.

Translate from traditional music notation to the drum grid, and from the drum grid back to traditional notation

Constructing Melody

Working with a graphical view is a chance to try composition with instant feedback.

Objective

Make the connection between Beaterator's melodic editor and staff notation, with graphical and sonic feedback.

Hands on

As with the drum loops, have students begin by exploring creating patterns graphically. Choose Add Loop... > Melody Loops... > New Loop – Load a Synth Patch to begin with simple melodic experimentation. The Default instrument (found among the Rockstar presets) is a good place to begin with synthesis sounds.



The staff: Compare the display in Beaterator, commonly called a “Piano Roll” view in music production software, with conventional staff notation. Note the position of the keys, and the mapping of octaves to C4 for middle C to the position of that note on a piano. You can easily place a vertical piano keyboard next to the spaces and lines of the Grand Staff in notation.

Portamento: Note that while the piano is incapable of bending notes, many other instruments are. To create a portamento effect, select a note “trigger,” hold down the X key, and move the directional pads right and left (to create the sustain) and up and down (to create a linear bend between pitches). Compare the notation for portamento on a score, which also uses diagonal lines. (If you're working in a class that is using music notation software like Finale or Sibelius, you might review how to replicate this notation in that



software.)

Scales and modes: You can introduce the concept of scales and modes with the added visual feedback of the spaces on the staff. For instance, you might begin with major (Mixolydian) and natural minor (Aeolian) modes, demonstrating the differences by referring to the spaces on the left-hand side of the view and modifying the pitches.

Questions for students

Turn down the sound and make a melody. Try singing it out loud together. Play back the melody and see how you did.

Play a melody with mostly stepwise motion, and one with larger leaps. Ask students to make a gesture with their arms that represents the motion of each. What's the difference between the different kinds of motion? How does it make you feel?

Assignment

Write two melodies, one in a major mode and one in a minor mode.

How would you describe how each melody sounds – *without* using words like “happy” or “sad”?

Constructing Harmony

Hear and see the results of harmonic progressions, without the fear of hitting wrong notes.

Objective

Using quick access to chords, help students experience the results of different harmonic progressions, and try assembling their own progressions.

Melody Crafter is restricted to basic note entry when using synth presets, but if you choose Melody Loop > New Loop – Load a Sound in place of Load a Synth Patch, you are presented with an additional mode called the Chord Pad Mode. It's a useful way of experimenting with harmonies.



Have the students create a new loop with a sound, such as Keyboard Bright 01. Open the Menu with the R key, then select Quick > Chord Pad Mode... > Chord Picker...

By default, the Chord Pad mode selects a common set of harmonies (I, IV, V, and vi), and selects inversion by default. Demonstrate the progression (I, vi/I, IV/I, V6) by selecting the keys X O. You can compare this progression to its common use in popular music, particularly Doo-Wop and early Rock and Roll. For example, chords with these rough voicings in the vocal part are heard in “Little Darlin’” by Maurice Williams, as covered by The Diamonds. (The functions are of course tonic, dominant, subdominant, and submediant, but it suffices at this point to listen to the chords before naming them.)

Refer back to the screen. What notes are in common in these three chords (leaving auto-inversion on)? What is the motion from one chord to another? What notes of the scale are comprised in the chords?



Finally, introduce the Chord Picker screen's editing functions. Change modes at the top of the screen to Major or Minor by selecting the mode, holding down the X key with the right and left d-pads, and audition the chords that result. Next, select some of the chords. Some of these will be unfamiliar to students, but have them listen to the sound of the different chords. Again, select the chord and choose X and the d-pads to audition different chords.



Demonstrate how the Melody Crafter can be used in conjunction with the Chord Picker to experiment with harmonic ideas. Inside the Melody Crafter, use SELECT to change modes to Chord Picker Record. To enter harmonies one at a time (step time recording), use the left and right d-pads to select a position in the bar and the action buttons to place different chords. To record them in real time, hit START to begin playback and then overdub chords by playing the buttons.

Questions for students

Try the same pattern with inversion switched on. Then switch it off. Which version sounds better to you? Why?

Taking the same set of chords, do you like certain orders better than others? Can you describe what sounds different?

Assignment

Create three two-bar chord progressions. What combinations sound best?

Pick your favorite progression, and make a melodic pattern over top of the chords. Which notes seem to sound appealing with these chords, and which do not? What happens if you take a note and move it to a different position in the bar?

Shared Production

Collaborate on a piece of music, making use of instruments and found sounds.

Objective

Develop musicianship, listening skills, and collaborative skills by working with audio in an active, shared way. Learn the basics of digital audio production.

Hands on

To pick up technique tips for production, pick two or three of Dubspot's hands-on tips and tricks videos for Beaterator to see recording techniques in action.

Point students to the audio recording facility. Select Menu (R button) > New Loop > Audio Loops... > New Loop > Record New Sound.



Once in recording mode, try recording a sound and adding it as a loop.

Have students try adding different elements to a completed production:

- Vocals, spoken word
- Instruments (mixing their various instrumental skills)
- Found sounds: banging on desks, sampling nearby sound sources

Note that some PSPs lack an internal mic; external microphones are available as accessories in game stores.

Working together, assemble these samples into a song. (For examples of this process, see Dubspot's Beaterator tour videos.) You may want to spread this lesson across multiple meetings with students.



✓ **Tip:** You can move files to and from your PSP. From the Home menu on the PSP, choose

✓ **Tip:** Project files can be shared between Beaterator copies and moved to and from recording tools on a computer (Pro Tools, Ableton Live, etc.) if you regularly work with production software. In Song Crafter, choose Menu (R key) > Song File... > Import/Export... to import and export MIDI files and export songs as WAV files. This way, you can construct patterns on the Beaterator and bring them into a desktop sequencer, or export finished audio tracks to share.

You can also import your own files and use them as sounds inside a drum track, so that drum patterns can trigger samples. From Song Crafter, choose Add a loop... > New Loop > Drum Loops... > New loop – Start from scratch. Then, choose to add a sound with the X key > Import Sound. Here, you can load a WAV file you've loaded onto your MemoryStick or a file you've recorded with the internal recording capability of Beaterator.

Questions for students

What's the effect of placing the PSP and its microphone in different places when recording – *without* touching the gain on the input? Aside from relative volume, how does the sound itself change?

How can you achieve variety in sounds that go together, when selecting the sounds and instrument you're recording?

What do you need to do to match the sounds you've recorded with one another?

Assignment

Construct a drum kit of your own creation, using only your voice and/or objects you find at home.

Make a drum pattern to show off your new custom kit.