

Shaping Soundscapes: ADSR in Ensemble Performance

The basics of envelopes and applying the concepts to musical performance

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Grade Level	8th – 12th Grade	**Time Frame**	80-95 Minutes
Subject	Performing Arts	**Duration**	2-3 Class Periods
Course	Band, Music		

Essential Question

How can music production concepts be applied to a traditional ensemble setting?

Summary

In this lesson for band classes, students will discuss what “attack” and “release” mean in a musical context. Students will participate in a “30-Second Expert” activity in pairs, in which one student reads about ADSR (attack, decay, sustain, and release) envelopes on synths and the other reads about attacks and releases on band instruments. The teacher will clarify knowledge and have students take turns recording samples of attacks and releases. Students will then learn about ADSR envelopes on synthesizers and how to manipulate them. Students will try to manipulate the ADSR to match their original recorded instrument sound. In the end, students will use an “I Used to Think... But Now I Know” activity to reflect on their learning.

Snapshot

Teacher's Note: Context of terms

In the context of this lesson, the terms “attack” and “release” are used to describe the start and stop of a note. To avoid your students developing an aggressive approach to starting a note due to associating it with the term “attack,” it is recommended that you have a conversation with your students about proper technique at the beginning of the lesson.

Engage

Students participate in a group discussion to define “attack” and “release” in music.

Explore

Students read articles about ADSR in music production and band, then summarize their learning with a partner.

Explain

Students create a recording and sample waveshape using their instrument and the software BandLab for Education.

Extend

Students explore an online synthesizer, then replicate their waveshape using an ADSR envelope.

Evaluate

Students reflect on their learning using the I Used to Think... But Now I Know strategy.

Standards

Oklahoma Academic Standards (Fine Arts: Music (Middle School to High School (Intermediate)))

M.PR.5 : Perform expressively, with appropriate interpretation and technical accuracy.
I.M.PR.5 : Demonstrate attention to technical accuracy and expressive qualities in prepared and improvised performances of a varied repertoire of music representing diverse cultures and styles.

Attachments

- 30-Second Expert T-Chart—Shaping Soundscapes - Spanish.docx
- 30-Second Expert T-Chart—Shaping Soundscapes - Spanish.pdf
- 30-Second Expert T-Chart—Shaping Soundscapes.docx
- 30-Second Expert T-Chart—Shaping Soundscapes.pdf
- Lesson Slides—Shaping Soundscapes.pptx
- Understanding ADSR in Music Production—Shaping Soundscapes - Spanish.docx
- Understanding ADSR in Music Production—Shaping Soundscapes - Spanish.pdf
- Understanding ADSR in Music Production—Shaping Soundscapes.docx
- Understanding ADSR in Music Production—Shaping Soundscapes.pdf
- Understanding Attacks and Releases in Band—Shaping Soundscapes - Spanish.docx
- Understanding Attacks and Releases in Band—Shaping Soundscapes - Spanish.pdf
- Understanding Attacks and Releases in Band—Shaping Soundscapes.docx
- Understanding Attacks and Releases in Band—Shaping Soundscapes.pdf

Materials

- Lesson Slides (attached)
- Understanding Attacks and Releases in Band handout (attached; one per pair)
- Understanding ADSR in Music Production handout (attached; one per pair)
- 30-Second Expert T-Chart handout (attached; one per student)
- Regular band instruments and supplies
- Internet-connected devices
- Headphones
- Sticky notes (two colors)
- Pencils

10 minutes

Engage

Use the attached **Lesson Slides** to guide the lesson. Begin by introducing the title on **slide 2.** Review the Essential Question on **slide 3**, and the Lesson Objective on **slide 4.** Move to **slide 5.** Using the instructional strategy Bell Ringers and Exit Tickets, give students two different colored sticky notes. Ask them to answer the questions on the slide, "*What does the word **attack** mean in music?*" and *"What does the word **release** mean in music?"* Have all students answer "attack" on one color of sticky note and use the other color for "release." After students have written down their answers, ask them to stick them on the white board. Display **slide 6.** Using the Justified List instructional strategy, ask students to combine related answers into common terms, writing them in marker on the board so they can be easily read. If there are any answers that seem outside the normal responses, ask if students can defend them. If they cannot, they should be removed. Once students have made a functional list, move to the next step.

Optional Tech Tool Integration

If you would like to do this activity virtually, you can utilize Mentimeter to create a word cloud or open-ended question for students to respond to. It is recommended to set up the activity before the lesson. Use hidden **slide 7** to facilitate the activity. For instructions on how to set up an activity, access the Mentimeter tech tool card.

15 minutes

Explore

Instruct students to break into pairs and provide each pair one copy of the **Understanding Attacks and Releases in Band** handout (attached), the **Understanding ADSR in Music Production** handout (attached), and two **30-Second Expert T-Chart** handouts (attached). Display **slide 8**. Introduce students to the 30-Second Expert instructional strategy. Ask students to decide who in their pair will read which article. Instruct students to read their chosen article and summarize it in their T-chart under the "What I know about this topic" column. Allow students 5–7 minutes to read and summarize their article. When they are finished, ask students to decide who in their pair will be the first speaker and who will be the first listener. Move to **slide 9**. Tell students they will have 30 seconds to relay the information they learned to their partner. Instruct the first speakers to start relaying their information when the timer on the slide starts by saying, "I am the expert on this topic because I know…." Instruct the listeners to reply when the time is up by saying, "According to you…" and repeating back what the speaker said. Then instruct the listeners to copy down what they learned in the "What I learned from my partner" column of their T-chart. Repeat the process with pairs switching roles. After all groups have shared with each other, select a few pairs to share what they learned both from the article and their partner, checking to make sure no other pairs have details that they missed. Have students add any additional details as they are shared.

Teacher's Note: Day Two Preparation

Consider ending day one after the Explore activity. For the next part of the activity, students will be using BandLab for Education. If you have not used this program before, you will need to log in before teaching this lesson to set up a class. Instructions on how to do that can be found on the BandLab Tech Tool card. While you can complete the recording in other ways, it is recommended to store them in a cloud-based storage system. Additionally, BandLab allows for students to see the actual waveshape of their recording.

In preparation for the beginning of day two, consider having students complete their recording outside of class time, as homework on day one. However, if they need to complete the recordings in class, have students do this in rotations in order to get the proper recording without bleeding over. Playing down the row could work, or you can have students break into small groups and record should you have enough practice rooms to facilitate. Do this either at the end of day one or the beginning of day two.

For percussionist students, you should have the students get a recording of a timpano, if possible, as there is a lot to be learned regarding proper muffling techniques. If you do not feel comfortable teaching timpani technique or want to focus on keyboards, a vibraphone would be suitable. For a non-pitched option, crash cymbals or a triangle would work well. Regardless of what is chosen, less advanced ensembles should use the same instrument while advanced ensembles might benefit from the comparing and contrasting of others.

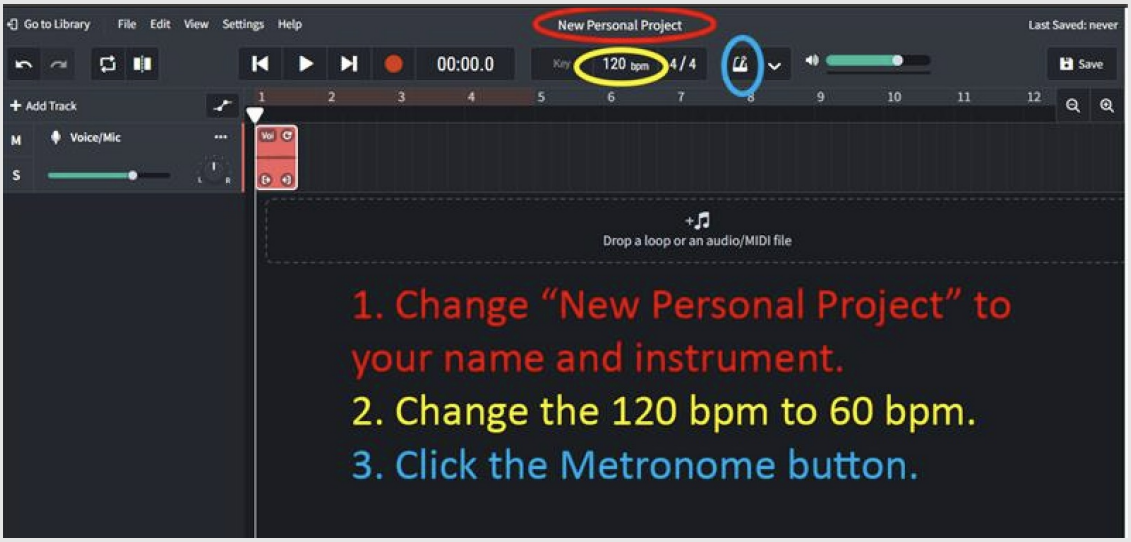
If you are having students complete the BandLab recordings outside of class, proceed to **slide 10** and lead students through the steps to create their recording as found in the BandLab Instructions Teacher's Note. Instruct students to complete their recording before the next class.

25 minutes

Explain

Teacher's Note: BandLab Instructions

Instruct students to open their internet device and navigate to BandLab so they can make a recording. Direct them to record a concert F on their instrument lasting for one quarter note at 60 bpm. When students open a new BandLab project, they will need to select the "Voice/Mic" option. Then have them click the text at the top of the screen that says "New Personal Project" and rename it to their name and instrument. Directly below that is a setting that says "120 bpm." Have them click on this and change the number to 60. Finally, instruct them to turn on the metronome by clicking the button that looks like one. Move to **slide 11** and share the tips to help them create a good quality recording.



Instruct students to click the "Record" button when they are ready to record. Remind them that they will be given four clicks and then the recording will start. Additionally, remind them that to prevent the attack of the note from being clipped off, it is recommended to wait an additional four clicks before playing so they can ensure they capture the entirety of the waveshape. If students want to examine the waveshape more closely, let them know they can double-click on the red box that is made in the track after they have recorded.

After completing the Explore activity, or at the beginning of day two, display **slide 12.** Use the vocabulary and visuals on the slides to help define "attack" and "release." Then move to **slide 13** and define the terms for ADSR. At this point in time, clarify any misconceptions and answer any questions from the students.

If your students completed their BandLab recordings prior to day two, move on to the next step, skipping the hidden slide 14**.** If they have not, go to **slide 14** and lead students through the steps in the BandLab Instructions Teacher's Note. You may also revisit slide 11 for tips to help students create a good quality recording. Ask students to break into small groups of no more than four and have them play their recordings for each other. Ask if they notice any difference in attacks and releases between the different instruments.

35 minutes

Extend

Move to **slide 15.** Instruct students to open their internet-connected devices and to navigate to the "Learning Synths Playground" from Ableton. Give students a few minutes to explore the page. Then direct students to **slide 16.** Play the video Shaping Soundscapes - Learning Synths Playground Tutorial with instructions on how to navigate the page and complete the activity.

Embedded video
https://youtube.com/watch?v=UPCJ5XrkVrg

When the video ends, display **slide 17** and instruct students to use the ADSR to make an attack and release that matches the ADSR of the recording they made on their instrument earlier. When they think they have it, have them record their sound for one quarter note at 60 bpm using the record function. When they have finished, have them submit both their instrument recording and their synth recording via their LMS (learning management system) submissions.

When all students have finished, ask them what they noticed about the envelope shape and their instrument. Ask if they think all instruments have the same shape. Have a few students from different sections share their examples.

Example Student Responses

Some examples of desired student responses might include:

"Brass and percussion instruments have different attack shapes."

"It's very difficult to get the envelope and my sound to match."

"I noticed my attack is more extreme than I thought."

What one should try and avoid are answers such as:

"Not much. They're the same."

"Yes."

Teacher's Note: Optional 2nd Extend

To further deepen students' understanding of music production, show the attached ICAP video K20 ICAP - Music Producer, Recording Engineer, and Professor - Shaping Soundscapes on hidden **slide 18**. This features Grammy-winning musician Dr. Christina Giacona, lecturer on Native American, World, and American Popular Musics, affiliate faculty for the Film and Media Department at the University of Oklahoma, and co-founder of Onyx Lane production company. When the video ends, use the instructional strategy POMS to help students reflect on what they learned. Ask students to share with an Elbow Partner. After a few minutes, ask for volunteers to share with the class.

Embedded video
https://youtube.com/watch?v=Mdq93vdSQEU

10 minutes

Evaluate

Display **slide 19**. Introduce students to the instructional strategy "I Used to Think… But Now I Know." Instruct students to respond to the prompts on the slide, *"I used to think ADSR was…"* and *"Now I know ADSR is…"* Have them write their answers to the questions on a sticky note. Allow students 2–3 minutes to answer the questions. Instruct students to place their answer on the whiteboard as they leave class as their exit ticket.

Resources

- K20 Center. (n.d.). 30-second expert. Strategies. https://learn.k20center.ou.edu/strategy/1048
- K20 Center. (n.d.). BandLab for education. Tech Tools. https://learn.k20center.ou.edu/tech-tool/2235
- K20 Center. (n.d.). Bell ringers and exit tickets. Strategies. https://learn.k20center.ou.edu/strategy/125
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- Login Pro User Guide for Mac. (2020). Attack, decay, sustain, and release. Apple Support. https://support.apple.com/guide/logicpro/attack-decay-sustain-and-release-lgsife419620/mac
- Mantione, P. (2017, July 16). *S*ynth envelopes 101: Attack, decay, sustain, release (ADSR). Pro Audio Files. https://theproaudiofiles.com/synthesis-101-envelope-parameters-uses/
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