Project Activity Guide

What Does Sound Look Like?

Exploring Sound Applications

Description:

Students will work individually or in small groups to explore and edit an audio file. They will use sound-editing software to explore how audio information is represented graphically in a digital space. Students will import an audio file, analyze the waveform and use tools within the sound software to manipulate their audio sample. They'll see the relationship of amplitude to volume, and frequency to pitch. They'll also "bounce" (export) their new song to a different format.

Goals:

To provide students with the opportunity to explore music in a digital space and to think about what they are hearing in a visual way. Students will have a better understanding of how to manipulate music and how audio is represented graphically.

Objectives:

The student will be able to:

- import and format an audio sample
- identify beats and other features of a waveform
- find and remove silence in audio
- fade in/out and crossfade audio
- identify and remove a section of music
- "bounce" (export) the clip they have completed

Preparation and Skill Mastery:

Students should have mastered basic computer skills, such as opening and saving documents, and using input devices (mouse, keyboard, and/or tablet). An introduction to the acoustic properties of sound (amplitude, frequency, etc.) may help students understand what they are working with in the software program.

Materials:

- Computer with sound-editing software installed
- Sample audio files included in the project resource packet

Task List:

The tasks to be completed for this project include:

- Importing an audio file and formatting the display
- Analyzing the waveform and identifying the effect of amplitude and frequency on volume and pitch
- Identifying silence in an audio file and removing it from the sample
- Fading the audio out
- Crossfading from one audio file to another
- Finding, selecting, and extracting an audio loop
- Bouncing the new song

Assessment:

Assessment might be based on the following:

- Was the student able to import and format an audio sample?
- Was the student able to identify beats and other features of a waveform?
- Was the student able to find and remove silence in audio?
- Was the student able to fade in/out and crossfade audio?
- Was the student able to identify and remove a section of music?
- Was the student able to "bounce" the file?

Extending and Adapting:

Here are some possible ways that this project might be extended or adapted for different curriculum areas, grade levels, and skill/ability levels:

- Audio editing can be used in interesting ways in all subject areas. For example: biology students might record and compare birdsong waveforms, English students might produce audio recordings of their own writing.
- Create a new song based on loops removed from other songs.
- Use another application to create your own music first, and then import your song into the sound-editing application for further work.
- Use a microphone to record audio directly in to the sound-editing application and manipulate the audio.
- Explore the different effects and/or plugins that are available within your sound-editing application.
- Bring in MIDI.

Notes to the Instructor:

Students will need access to audio clips that they can import and edit within the software application. Some sample audio is provided in the downloadable resource packet that accompanies this project. The provided audio is in MP3 format to keep the size of the downloadable file small. You may want to provide other formats (AIFF, WAV, etc.) or have your students use other audio clips from their own collections or from other resources available on the Internet.

The tutorial movies demonstrate importing an AIFF file. This same clip is available in the downloadable resource packet in MP3 format – again, to keep the file sizes small. Substitute the MP3 file, or another of your own choosing, if the students are following along and performing the operations called for in the tutorial movies.

The tutorial movies demonstrate exporting (bouncing) the file in WAV format. The bounced clip is provided in MP3 format in your resource packet. If students will be exporting to a format other than WAV, such as MP3, additional plug-ins may be required by your software application.

Included in the downloadable resource packet:

- A copy of this document in MS Word format
- A copy of this document in PDF format
- Sample audio clips for import (folder "Audio_sample")
- Sample bounced file

The following page contains an assessment rubric that could be used by the instructor to assess student work, or by the students for self-assessment of their final project.

Assessment Rubric for "What Does Sound Look Like?"

Rating: **Objective or Task:**	**Poor** Is unable to complete this task without guidance	**Fair** Is able to complete this task with some guidance	**Good** Is able to complete this task without any guidance	**Excellent** Is able to complete this task without any guidance and can apply the same process to other projects without help	**Row Score:**
Open a new document	1	2	3	4	
Import the audio file	1	2	3	4	
See the beat	1	2	3	4	
Investigate/change pitch	1	2	3	4	
Delete sections of the soundtrack	1	2	3	4	
Cut/paste sections	1	2	3	4	
Add a fade	1	2	3	4	
Add crossfading	1	2	3	4	
Find a loop	1	2	3	4	
Select a loop	1	2	3	4	
Extract a loop	1	2	3	4	
Bounce a new song	1	2	3	4	
				Total Score:	

