



Raspberry Pi

Year 4 – Creating media – Audio production

Unit introduction

Learners will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers.

This unit presumes the use of laptops or desktops (with microphones and headphones) and the free program Audacity (<https://audacityteam.org/download>), but other audio recording apps are available if you wish to use tablets. It's advisable to use headphones in a classroom setting, as they make it easier for learners to hear their recordings whilst also reducing the overall background noise.

Throughout this unit, there are opportunities to model actions for the learners in Audacity, or to demonstrate a concept through an animated screen recording. Pedagogically, it is more beneficial to model the concepts for the learners, which allows for easier questioning and understanding. We recommend that you use the screen recordings to see what needs to be modelled, but give a live demonstration within the lesson. However, the recordings are provided on the slides if you wish to use them instead.

Overview of lessons

Lesson	Brief overview	Learning objectives
1. Recording sound	In this lesson, learners will identify the input devices used to record sound and output devices needed to listen to it. They will then record their voices using a computer, and reflect on what makes a good audio recording. Lastly, learners will consider ownership and copyright issues related to recordings.	To identify that sound can be recorded <ul style="list-style-type: none"> ● I can identify the input and output devices used to record and play sound ● I can use a computer to record audio ● I can explain that the person who records the sound can say who is allowed to use it
2. Editing audio	In this lesson, learners will record and re-record their voices to improve their recordings. They will edit the recordings, removing long pauses and mistakes. Learners will also listen to a range of podcasts and identify the features of a podcast.	To explain that audio recordings can be edited <ul style="list-style-type: none"> ● I can re-record my voice to improve my recording ● I can inspect the soundwave view to know where to trim my recording ● I can discuss what sounds can be added to a podcast
3. Planning a podcast	In this lesson, learners will record their voices and then import and align sound effects to create layers in their recordings. Learners will learn how to save their work so it remains editable. They will then plan their own podcast which they will work on in future lessons.	To recognise the different parts of creating a podcast project <ul style="list-style-type: none"> ● I can explain how sounds can be combined to make a podcast more engaging

		<ul style="list-style-type: none"> • I can save my project so the different parts remain editable • I can plan appropriate content for a podcast
4. Creating a podcast	In this lesson, learners will record the voice tracks for their podcast. They will review their recordings and re-record if necessary. Learners will edit, trim, and align their voice recordings, and then save their project so they can continue working on it in the next lesson.	<p>To apply audio editing skills independently</p> <ul style="list-style-type: none"> • I can record content following my plan • I can review the quality of my recordings • I can improve my voice recordings
5. Combining audio	In this lesson, learners will develop their podcast further by adding content such as sound effects and background music. The audio will be layered with their existing voice recordings and exported as an audio file.	<p>To combine audio to enhance my podcast project</p> <ul style="list-style-type: none"> • I can open my project to continue working on it • I can arrange multiple sounds to create the effect I want • I can explain the difference between saving a project and exporting an audio file
6. Evaluating podcasts	In this lesson, learners will evaluate their own podcasts and that of others. After looking at the evaluation, learners will decide if they can improve their podcast and then make any changes they have chosen.	<p>To evaluate the effective use of audio</p> <ul style="list-style-type: none"> • I can listen to an audio recording to identify its strengths • I can suggest improvements to an audio recording • I can choose appropriate edits to improve my podcast

Progression

This unit progresses students' knowledge and understanding of creating media, by focusing on the recording and editing of sound to produce a podcast. Following this unit, learners will explore combining audio with video in the 'Video editing' unit in Year 5.

Please see the learning graph for this unit for more information about progression.

Curriculum links

[National curriculum links](#)

Computing - KS2

- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information
- Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Science - Year 4 (Lesson 2)

- **Sound:** Find patterns between the volume of a sound and the strength of the vibrations that produced it
- **Sound:** Recognise that sounds get fainter as the distance from the sound source increases

English - Years 3 and 4 (Lesson 3)

- **Writing – composition:** Plan their writing by discussing and recording ideas
- **Writing – draft and write by:** In non-narrative material, using simple organisational devices [for example, headings and subheadings]
- **Writing:** Read aloud their own writing, to a group or the whole class, using appropriate intonation and controlling the tone and volume so that the meaning is clear

Education for a Connected World links

Copyright and ownership

- I can explain why copying someone else’s work from the internet without permission can cause problems (Y3)
- I can give examples of what those problems might be (Y3)
- When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it (Y4)
- I can give some simple examples (Y4)

Assessment

Formative assessment

Assessment opportunities are detailed in each lesson plan. The learning objectives and success criteria are introduced in the slide decks at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.

Summative assessment

Please see the assessment rubric document for this unit. The rubric can be used to assess student’s work from lesson 6.

Subject knowledge

Lesson 1: You will need to be familiar with the location of built-in microphones if using laptops. You should be familiar with using Audacity to record sound. You should be aware of ways to improve the quality of recorded audio including: low background noise and proximity to the person talking in relation to the microphone.

Lesson 2: You will need to be familiar with using Audacity to record audio, including how to delete individual tracks. You will also need to be able to trim and align audio.

Lesson 3: You will need to be familiar with importing audio into Audacity as well as how to save an Audacity project.

Lesson 4: You will need to be familiar with using Audacity to record sound, edit audio, and adjust the volume of tracks.

Lesson 5: You will need to:

- Be familiar with loading a saved Audacity project and importing audio files
- Be able to copy and paste audio within a track
- Be able to export an Audacity project as an mp3 file

Note: You may wish to help learners fade music in or out. To create fades in Audacity, select the section to fade — often this is the first or last second or two of a track. Then go to the effects menu and choose fade in or fade out.

Lesson 6: You will need to be familiar with using Audacity to export audio recordings.

Enhance your subject knowledge to teach this unit through the following training opportunities:

Online training courses

- [Raspberry Pi Foundation online training courses](#)

Face-to-face courses

- [National Centre for Computing Education face-to-face training courses](#)

Resources are updated regularly — the latest version is available at: ncce.io/tcc.

This resource is licensed under the Open Government Licence, version 3. For more information on this licence, see [ncce.io/ogl](https://www.ncce.io/ogl).