Recording standards

About this guide

Introduction

Have you ever tried to find a simple sound in the online database for your classes? Somehow, none of them fit you. One was too long, another was too poor in quality and so on.

Instead of spending hours searching the Internet, take matters into your own hands.
Go for a walk and record the sounds or soundscapes you need.

But how to do it?

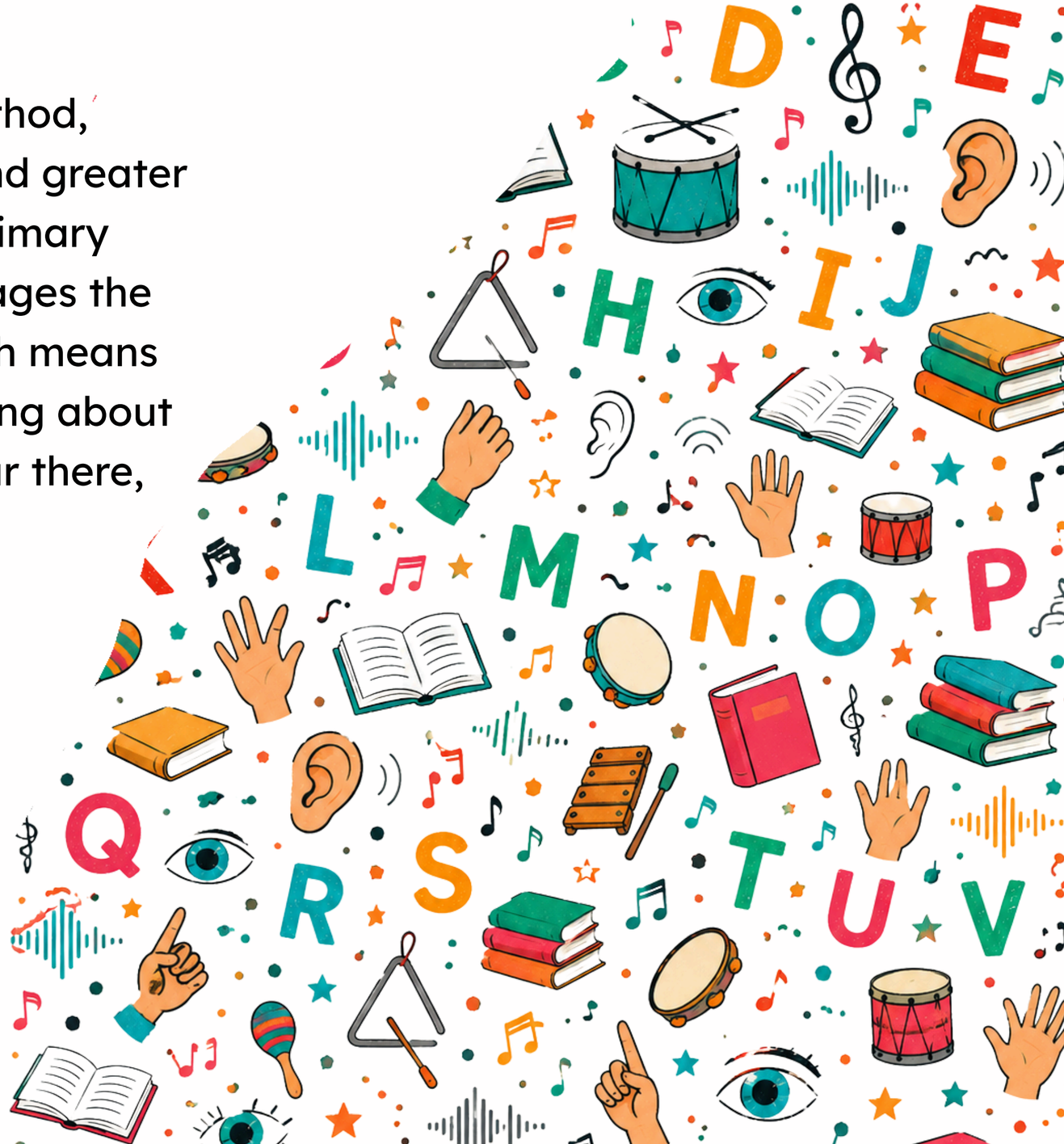


Recording Standards Guide will provide you with experience-and practice-based information on how to collect the sounds you need. On the next pages you'll read about equipment needed, some practical tips on recording and editing sounds. A separate section is dedicated to recording responsibility – respecting privacy, understanding copyright or licensing.

We end the Guide with basic advice and guidelines for turning a simple recording into a learning experience for your students. This is called sound-based learning.



Sound-based learning is a very useful method, offering a more multisensory approach and greater inclusivity, especially in preschools and primary schools. It gives children who learn languages the opportunity to express themselves through means other than words. On the other hand, talking about soundscapes with your class, what we hear there, can enhance children’s vocabulary.



Sound-based learning is a relatively new approach in education. But it is worth a closer look. This is why we recommend you explore other resources we create as part of the Sound of Stories 2.0 project. They include an online course on sound-based learning, lesson scenarios that use sound, and a database of sounds and soundscapes. You'll find them on the project's website, soundofstories.eu.

In the meantime, it's time for you to get some useful knowledge on sound recording.



Recording equipment

Types of recording devices

Before beginning the recording process, you should consider several factors when choosing equipment, including budget, recording environment, and the intended purpose of the recordings.

If your budget is limited and you have no specific requirements regarding audio quality, a mobile phone or a basic recorder may be sufficient.
However, when you need a higher standard of audio recording, we strongly recommend the use of a stereo recorder. Stereo recorders are available from a wide range of manufacturers and are offered at varying price levels to suit different needs and budgets.

You also should consider the purchase of additional recorders to ensure that future cohorts of students can benefit from access to the equipment.

Choosing equipment

The enhanced audio quality provided by a stereo recorder can significantly improve the listening experience by creating a greater sense of depth, spatial awareness, and realism. This enables the capture of subtle sounds and acoustic details that may otherwise be lost. For example, sounds such as shoelaces being tied or coffee being poured into a cup can be reproduced with a level of clarity and immersion that enriches the overall recording.

XVive XV1-R
Portable Stereo Recorder



Approx. 70€

Zoom H4essential 32-Bit
Four Track Recorder



Approx. 210€

Tascam
DR-40XP



Approx. 260€

Smartphone recording



Zoom H4essential recording



Recommended accessories

- Wind hood, to minimise wind noise (it can be purchased together with the stereo recorder).
- Good-quality headsets.
- Splitter, a wire that allows more people to listen.
- A tripod to mount the stereo recorder on, so it doesn't pick up noise from you holding the recorder, nails scratching, etc.
- Bag or box for storage.
- A speaker or soundbar for audio playback.

Check whether the stereo recorder needs batteries or a memory card.



Training with the equipment

Once you have purchased the equipment, it is important to become familiar with its functions and capabilities. The best way to do this is through practical experience: take the recorder into different environments and spend time listening actively to the sounds around you.

Begin by switching on the recorder, connecting your headphones, and simply walking around while listening to the surrounding soundscape. This will help you develop an awareness of how different sounds are captured and reproduced.



Consider exploring a variety of settings, such as:

- Indoors: conversations, household activities, footsteps, doors opening and closing.
- Outdoors: natural environments, animals, different weather conditions, and traffic.

Regular listening exercises will help you gain confidence in using the equipment and improve your ability to identify interesting and meaningful sounds for future recordings.



The recording –

How to do it?

Preparing the recording environment and reducing unwanted noise

A great recording begins before you press the record button. Managing your environment helps you capture the sounds you actually want while keeping your recording "clean."

- **Stop and listen:** Stand quietly in your chosen location for 1 to 2 minutes. Identify constant background noises (like wind, distant traffic, or a hum from a building).
- **Time it right**: If possible, record when the environment is at its natural best. For nature sounds, early mornings are perfect; for quiet urban areas, late evenings work wonders.



How to reduce noise?

- **Use your wind hood**: Always slide a wind cover (deadcat or foam) onto your recorder when working outdoors. Even a light breeze can create a heavy, unusable rumble on your track.
- **Use a tripod**: Mount your recorder on a small tripod. Holding it in your hands will inevitably introduce rustling sounds from your fingers or nails touching the plastic casing.
- **Step back**: Once you hit record, take a step or two back. Try to remain completely still and hold your breath during critical quiet moments so as not to capture your own footsteps or rustling clothes.



Microphone placement, sound levels, and recording techniques

How you position your recorder and set your levels makes the difference between an immersive sound experience and a distorted, hard-to-hear clip. **Find the right distance!**

- **For specific sounds (Close-up)**: If you are recording a key sound (like scissors cutting paper or water dripping), place the recorder 20 to 50 cm away.
- **For atmospheres (Wide-angle)**: If you are capturing a whole environment (like a playground, classroom, or forest), mount the recorder at head-height on your tripod to capture the space exactly as a human hears it.



Set your recording levels!

- **Don't record too loud**: Adjust your input gain so that your normal levels bounce around -18 dB to -12 dB on the screen's meter.
- **Keep a safety margin:** Leave enough "headroom" (aim for peaks no higher than -6 dB). If a child suddenly laughs or a dog barks, the sound won't distort or clip.
- **Trust your ears:** Always plug in your headsets while setting up. What you hear through the headphones is exactly what is being written to your memory card.



Capturing clear, diverse, and immersive environmental sounds

To make your recordings exciting for children, you want to capture sounds that feel alive, deep, and three-dimensional.

Create layers of depth:

- **The background (The "Bed"):** Capture the steady, continuous atmosphere of the place (the rustle of leaves, the distant hum of a city).
- **The foreground (The "Events")**: Look for unique, sharp sounds that punctuate the space (a single bird chirping nearby, a gate creaking open).

Click ‘play’ to hear!



Gather different perspectives:

- Instead of staying in one spot, build a small "sound kit" for your story by recording:
  - One wide, long track of the overall environment.
  - Several close-up, isolated tracks of specific elements within that environment.
  - This variety gives you and your students rich building blocks to design and play with later during your classroom activities!



Recommended recording length

How long should you keep recording?

The answer depends entirely on the type of sound you are aiming to capture:

- **Continuous environments (forest, beach, city square)**: Record for 2 to 3 minutes. This provides a long, stable audio "bed" that your class can listen to comfortably without the sound repeating too quickly.
- **Evolving environments (a school hallway, a train station):** Record for 3 to 5 minutes to capture the natural rise, peak, and fall of the action as it unfolds.
- **Single sound events (a door locking, a bell ringing):** Perform the action 5 to 10 times in a row, leaving about 5 seconds of silence between each attempt. This gives you plenty of clean options to choose from during the editing phase.

Recording edition

Basic Editing Techniques

Why edit your audio?

Recording is only the first step. Simple editing techniques can make your recordings clearer, shorter, and more pleasant to listen to. You don't need professional software – basic editing tools available in free programs are enough to improve the quality of your recordings.

Editing helps remove unwanted sounds, improve the listening experience, and keep students focused on the important parts of the recording. Removing distractions and ensuring comfortable listening makes recordings more engaging and accessible for all learners, including students with Specific Learning Difficulties (SLDs).

Cutting and trimming

Cutting removes unwanted parts from the middle of a recording, such as mistakes, long pauses, or unexpected noises. Trimming removes unnecessary audio from the beginning or the end of a recording, helping listeners reach the useful content immediately. Always listen carefully before deleting sections to avoid removing important information.

Example:

- **Original recording:** "Today we are... um... going to listen... (5-second pause)... to the forest sounds."
- **Edited recording:** "Today we are going to listen to the forest sounds."

This removes hesitations and long pauses while keeping the speech natural.

Balancing Volume

A recording should have a consistent volume from beginning to end. If some parts are too loud and others too quiet, listeners may struggle to follow the content. Most editing software includes simple volume adjustment or normalisation tools that make the overall recording more balanced without changing the original message.

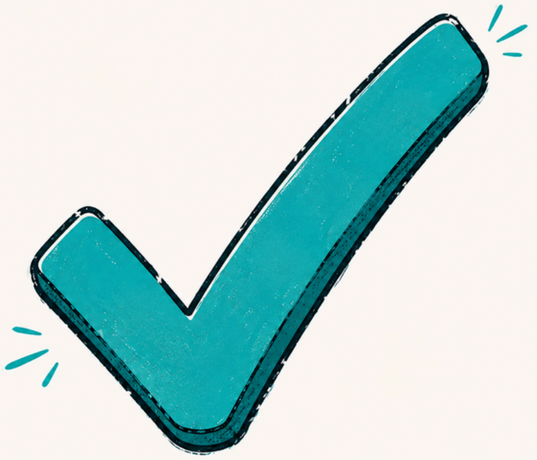
Example:
During a soundscape, the narrator's voice is much quieter than the sound of rain. After balancing the volume, both the narration and the background sounds are clearly audible without either overpowering the other.
Listen using headphones before saving the final version.

Final Check

Before publishing your recording:

- Listen to the entire recording.
- Check for clicks, background noise, or abrupt cuts.
- Make sure the volume remains consistent.
- Save your project before exporting.
- Export using a common format such as MP3 or WAV.

Small improvements can make your educational recordings much more professional and easier for students to understand.





Removing background noise and improving audio clarity

Why clean audio matters

Even a well-recorded sound can include unwanted background noise such as wind, traffic, electrical hum, air conditioning, or people talking nearby. These distractions can reduce the quality of your recordings and make it harder for listeners to focus on the important sounds.

Cleaning your audio improves clarity and creates a more enjoyable listening experience for students. The goal is not to make recordings perfect, but to make them easy to understand while preserving their natural character.

Example:

A recording of a river also captures nearby traffic noise. Removing the traffic sound allows students to focus on the flowing water without unnecessary distractions.

Identifying background noise

Before editing, listen carefully to your recording from beginning to end. Identify sections where unwanted sounds interfere with the main recording. Common background noises include:

- wind and microphone handling noise
- electrical hum or buzzing
- traffic, machinery, or construction
- conversations or unexpected environmental sounds.

Using headphones can help you detect subtle noises that may not be noticeable through speakers.

Example:
While listening with headphones, you notice a low air-conditioning hum throughout the recording. This noise can be selected and reduced during editing before the final export.

Reducing noise and improving clarity

Most audio editing software includes simple tools for reducing constant background noise (e.g. In Audacity: Efect->Noise Removal and Repair). Start by selecting a short section containing only the unwanted noise, then apply the software's noise reduction feature carefully.
Avoid applying excessive noise reduction, as it can make voices and natural sounds distorted or artificial. If needed, make small adjustments to volume and equalisation (EQ) to improve speech or important environmental sounds.



Final Listening Check

After cleaning your recording:

- Listen from start to finish using headphones.
- Check that speech and important sounds remain natural.
- Ensure no new artifacts or distortion were introduced.
- Compare the original and edited versions.
- Export the final recording in a suitable format such as MP3 or WAV.

A clean recording helps learners stay engaged and better understand the audio content.



Exporting files in suitable formats for storage and educational use

Why export format matters

After recording and editing your audio, the final step is exporting the file in an appropriate format. The format you choose affects sound quality, file size, compatibility with different devices, and long-term storage.

Selecting the right format ensures that your recordings can be easily shared with students, uploaded to online learning platforms, and preserved for future educational use.



Common audio file formats

Different formats serve different purposes:

- WAV – high-quality, uncompressed audio. Ideal for archiving and future editing but requires more storage space.
- MP3 – compressed format with smaller file sizes. Excellent for sharing online and classroom use.
- AAC – efficient compression with good sound quality, commonly used on mobile devices.
- FLAC – lossless compression that preserves original quality while reducing file size, suitable for long-term storage.

Choose the format that best matches your intended use.

Recommendation:

For most educational soundscapes, save the master recording as WAV and share the final version as MP3. This provides both high-quality storage and easy distribution.

Export settings and best practices

When exporting your recording:

- Choose an appropriate file name that clearly describes the content.
- Keep a high-quality master copy (preferably WAV or FLAC).
- Create an MP3 version for easy sharing and online learning platforms.
- Use standard sample rates (44.1 kHz or 48 kHz) unless your project requires otherwise.

Organising files into clearly labelled folders also makes future retrieval easier.

Example:

You record a nature walk for a science lesson. Save the original recording as WAV to keep the highest quality, then export a second copy as MP3 to upload and share.

Final check

Before sharing your recording:

- Confirm that the exported file plays correctly.
- Check compatibility with computers, tablets, and smartphones.
- Ensure the file size is appropriate for online uploading.
- Store backup copies in secure locations or cloud storage.
- Include clear file names and metadata where possible.

Well-organised audio files save your time, improve accessibility and support future classroom activities.



Practical tips

Organising recordings with folders, tags and naming conventions

Effective organisation of sound recordings helps you quickly find and reuse audio materials for educational activities. A well-structured sound library also saves time and supports collaborative work among colleagues.

A clear folder structure makes recordings easy to locate.

Files can be organised by categories such as:

- nature sounds (rain, wind, birds, rivers)
- animals (farm animals, wild animals, insects)
- everyday sounds (kitchen, transport, household objects)
- musical sounds (instruments, rhythms, songs)
- classroom activities (storytelling, listening games, movement activities)
- emotional or relaxation sounds (calming music, ocean waves, forest ambience).

Use consistent file names that include useful information.

For example:

- Birds_Forest_Morning_01.wav
- Rain_Light.mp3
- Kitchen_Spoon_Cup.wav

Adding tags or keywords such as nature, transport, quiet, loud, rhythm, animals, or storytelling allows recordings to be searched more efficiently in many digital storage systems.



Creating searchable sound libraries and databases

A searchable sound library helps teachers quickly access recordings when planning lessons.

Useful information to record for each sound includes:

- title
- category
- description
- duration
- recording location
- date of recording
- age group
- learning objective
- keywords or tags
- file format

A simple database can be created using a spreadsheet or database application, making it easy to search by topic, educational purpose, or sound type. You can also include notes describing how each recording has been used in classroom activities.

Backup strategies: cloud/local storage

Digital recordings represent valuable educational resources and should always be protected against accidental loss.

Recommended backup practices include:

- Keep the original recordings on a computer or external hard drive.
- Create at least one additional backup copy.
- Use reliable cloud storage for secure access from different devices.
- Update backups regularly, especially after creating new recordings.
- Organise folders identically across all storage locations to avoid confusion.
- Periodically review the library and remove duplicate or low-quality recordings.

Combining local storage with cloud storage provides greater security and flexibility. Local storage allows quick offline access, while cloud services support collaboration and ensure files remain available even if a device is lost or damaged.

Best practices

- Maintain a consistent folder structure.
- Use descriptive and standardised file names.
- Add keywords to improve searchability.
- Keep recordings in high-quality formats whenever possible.
- Document important information about each recording.
- Perform regular backups.
- Review and update the sound library throughout the school year.

A well-organised sound database enables educators to build a rich collection of audio resources that supports active listening, literacy, creativity, inclusion, and interdisciplinary learning in early childhood education.

Recording responsibility

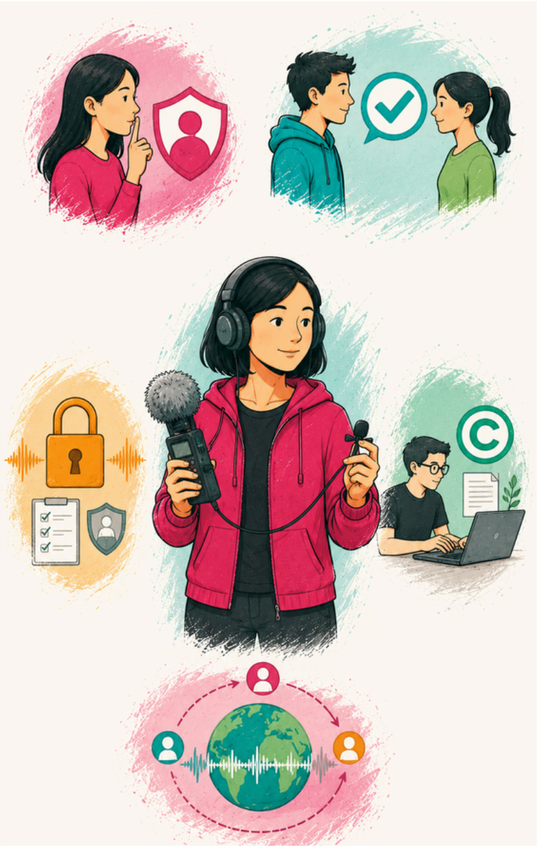
How to create sound recordings with respect, safety and care

Recording is far more than using a microphone – it also means respecting the people and places around us.

When making recordings, remember to always consider:

- respect for people's privacy
- consent before recording voices
- safe recording practices
- copyright and licensing
- responsible sharing of recordings.

Good recordings begin with ethical choices.



Privacy and consent

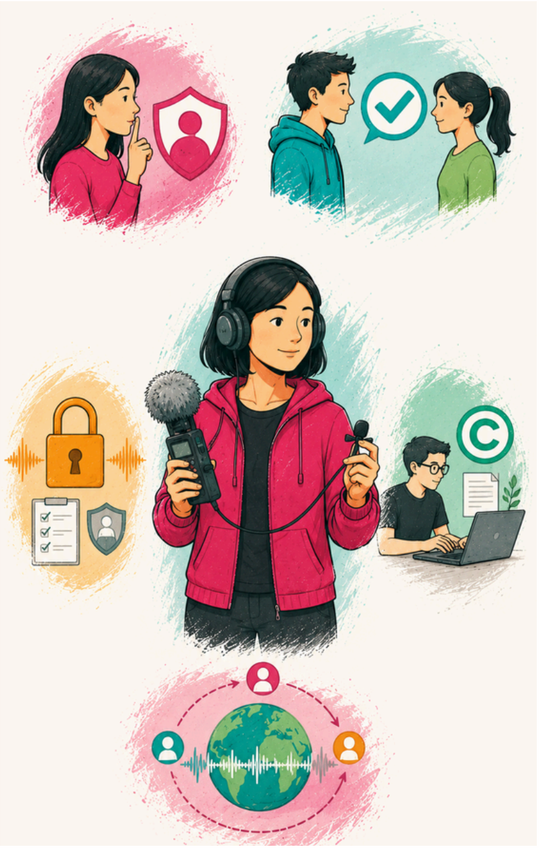
Before recording people, ask yourself:

- Do I have permission?
- Does everyone understand how the recording will be used?
- Are children involved?
- Is the recording necessary?

Good practices:

- Obtain consent before recording identifiable voices.
- Follow your school's or organisation's safeguarding policies.
- Avoid recording private conversations.
- When possible, record sounds instead of identifiable people.

Remember: respect builds trust.



Recording safely

Safe Recording in Schools and Public Spaces

Safety always comes before sound quality.

Think about your surroundings:

- Stay aware of traffic and other hazards.
- Never enter unsafe areas to capture a sound.
- Keep recording equipment secure.
- Supervise children during recording activities!
- Respect rules at museums, parks and public buildings.

Be a responsible sound explorer.



Copyright and sharing sounds responsibly

Not every sound recording can be shared freely.

Before publishing, ask:

- Who owns the recording?
- Does anyone appear in it?
- Can it be shared publicly?

Best practices:

- Use recordings you have created yourself.
- Credit contributors when appropriate.
- Use clear licences (for example, Creative Commons).
- Store recordings securely.
- Share only recordings that you have permission to distribute.

Our goal is to create a safe, ethical and reusable sound library for educators across Europe.

From recording to learning experience

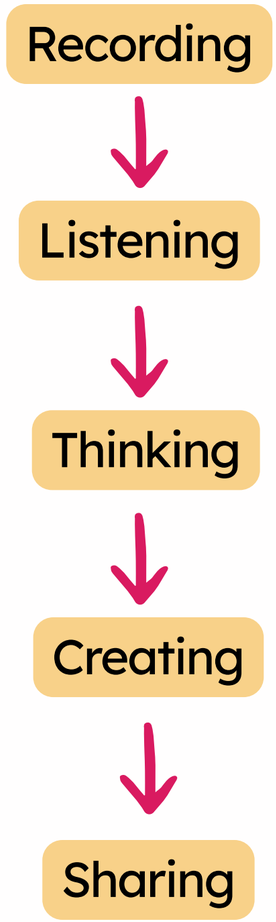
A sound recording is only the beginning

A single recording can become a powerful learning resource when it is transformed into an engaging classroom experience.

Sound can support:

- literacy development
- storytelling
- imagination
- vocabulary building
- curiosity and inquiry
- historical and cultural understanding.

The goal is not simply to listen – but to think, imagine and create.



Soundscapes that inspire literacy

Listening creates stories.

Soundscapes encourage children to:

- predict what is happening
- describe what they hear
- build new vocabulary
- sequence events
- develop oral language
- write, draw, tell, record and create their own stories.

Example:

Children hear: horse hooves

They ask: Where are we? Who is there? What happened? What will happen next?

This way, listening becomes the starting point for reading, writing, drawing, etc.

Designing inclusive learning experiences

Sound can engage every learner.
Sound-based learning supports different learning styles by combining listening, movement, creativity and collaboration.

Activities may include:

- active listening
- drawing what you hear
- role play
- creative writing
- building scenes/models with LEGO or natural materials
- sound walks.



Inclusive practices:

- open-ended tasks
- multiple ways to participate
- small-group collaboration
- support for multilingual learners
- opportunities for children with reading difficulties.

There is no single correct answer – every child can contribute!



Why this structure?

It fits very well with the philosophy of Sounds of Stories 2.0:

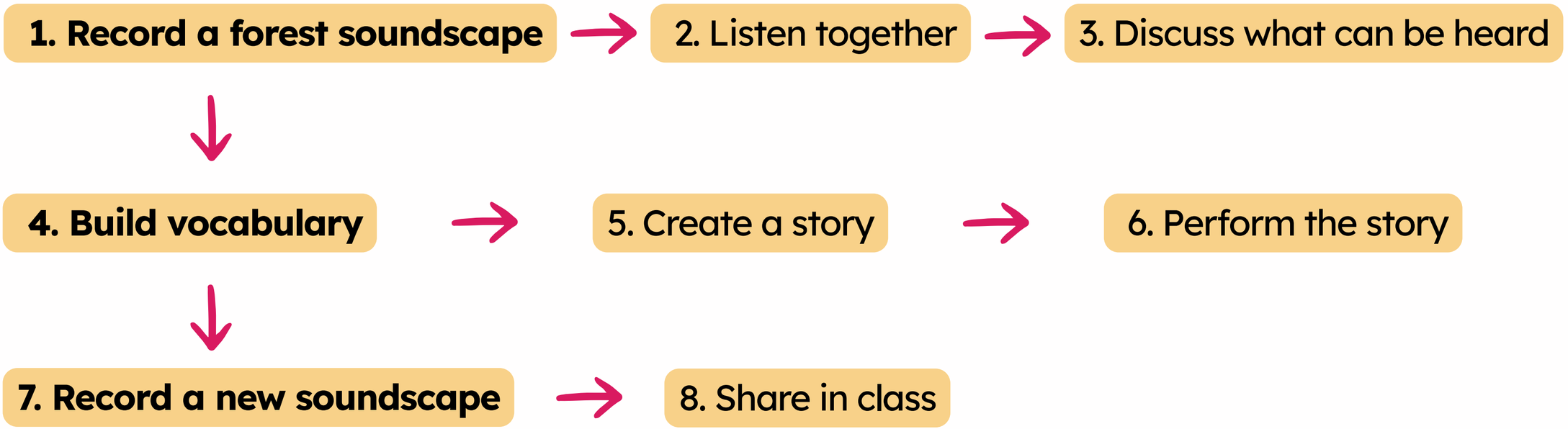
Recording is the essential raw material (Slide 1)
Sound supports literacy (Slide 2)
All children can join (Slide 3)
Sound becomes learning and new creations (Slide 4)

It provides a natural progression from engineering to pedagogy and shows how an audio recording can develop into a rich and inclusive learning experience. At the same time, it builds on the first edition of Sound of Stories by using sound as an active part of storytelling, cultural heritage, and creative education.
"Every sound tells a story. Every child can tell one too."

From sound to interactive learning

Turning Recordings into Educational Resources. One recording can become many learning activities.

Example of a typical workflow in Sound of Stories 2.0:



The learning cycle

The recording becomes a catalyst for creativity, collaboration and meaningful learning.



Listen



Imagine



Create



Reflect



Share

Summary

We hope this guide has helped you better understand the basic information on soundscape recording standards.
As you've seen, recording is not only about going outdoors and getting any sound you hear. It is a multi-stage activity that engages our senses, our digital skills, and, of course, our pedagogical talents. But the result is worth this effort.

PS. Remember to check other Sound of Stories 2.0 resources on the project's website: soundofstories.eu.



Photo and sound credits



All images were generated with AI.

Slides 10, 11 and 52: Sounds recorded by Vesthimmerlands Museum

Slide 20: Sound is a mix of: Effect by Dany_photo from Pixabay and Sound Effect by freesound_community from Pixabay

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