

# **BATOD and BAEA**

## **Considerations for music lessons and examinations**



A practical guide for educators, audiologists, families, exam centres, and awarding bodies to create inclusive, accessible and fair music learning and assessment environments for deaf children and young people

This resource is dedicated to Paul Simpson (BATOD National Executive Officer 1999-2023). Over many years, Paul, a leader in deaf education, championed for access arrangements to support levelling the playing field for deaf learners in assessments and examinations. Paul was also known for his love of music.

Paul, your input to this resource was deeply missed.

# BATOD and BAEA Considerations for music lessons and examinations

This document is a practical guide for educators, audiologists, families, exam centres, and awarding bodies to create inclusive, accessible and fair music learning and assessment environments for deaf<sup>1</sup> children and young people (CYP). Regular consultation with deaf CYP is vital to understand their experiences of music and to support them in making informed decisions.

Deaf CYP may be educated in mainstream schools, schools with deaf resource provisions or specialist deaf schools with access to an onsite specialist teacher ie Qualified Teacher of Deaf Children and Young People (QToD) or a QToD from the local authority sensory support service working in a peripatetic capacity.

### Overview

In response to queries and advice about access to music in lessons and examinations, BATOD<sup>2</sup> and BAEA<sup>3</sup> in partnership with a range of deaf musicians, music teachers, and other professionals with experience in music and deaf education have co-created this document. BATOD and BAEA appreciate access arrangements are intended to allow fair, without advantage access to assessments as long as they do not compromise the assessment objectives of the specification in question.

*Music composition is a tool for personal expression and communication.* The perception of music may vary for CYP and adults due to audiometrics, personal life experiences, the place of music in cultural traditions and customs, and formal and informal teaching experiences. For CYP who use hearing aids and/or cochlear implants, their experience of music may differ from the experience of a non-deaf person. "Hearing aids and cochlear implants are programmed primarily to understand speech clearly. Speech and music have many differences including intensity, energy at different frequencies, and frequency emphasis. Musical instruments typically have a much greater dynamic range and frequency range than speech. This means that hearing aids and cochlear implants do not reproduce music exactly, and that a deaf person may not experience music in the same way as a hearing person" (National Deaf Children's Society (NDCS), 2016). A single speaker, singer, or instrument is often easier for hearing aid or cochlear implant wearers to follow. Due to the limitations of hearing devices, it is more difficult for wearers to follow multiple instruments.

For deaf CYP, the approaches implemented to support access to music may influence their perceptions and experiences. This document outlines some considerations for music lessons and examinations and will be regularly reviewed to reflect developments, research study findings,

case study examples, and advice from deaf musicians. Deaf CYP should be respected to make informed decisions. Some opt to remove their hearing aids in their music lessons. The type and level of deafness contribute to how CYP experience music and they may prefer to experience it without technology, or experience it in ways other than through sound eg vibrotactile.

Music is generally dominated by information in the low-to-mid frequencies, although harmonics that are crucial for timbral recognition can extend very high. Discussions between the deaf CYP, the family, music teachers, QToDs, the Educational Audiologist (Ed Aud), the clinical audiologist, qualified hearing therapists, and exam centre are essential to explore which aspects of the listening component can or cannot be accessed and why, for example, the deaf CYP may not be able to identify high-frequency tones. These discussions can then lead to improved access through exploration of which reasonable adjustments are needed, eg changes/alternatives to their current personal amplification or adaptations to how the material is accessed by the student. These reasonable adjustments can then be presented and discussed with the awarding body in order to achieve an agreement on the best approach.

Recent publications and research on deaf CYP and music reflect the importance of access to music for social well-being and listening skills developments. Whilst many studies are from the parents' perspectives rather than lived experience of the deaf CYP themselves, (Chasin, 2022; Jorgensen and Walker, 2019), an online training program created by a deaf hearing therapist, the PROM-T<sup>5</sup>® Foundation Course, does demonstrate, via available clinical research together with lived experience, why these access methods can be helpful. Results can vary between individuals and be multifactorial. Hence, bespoke solutions will have their place.

1 Deaf denotes all levels and types of deafness.

2 British Association of Teachers of Deaf Children and Young People (BATOD) is the only professional association for Qualified Teachers of Deaf Children and Young People.

3 British Association of Educational Audiologists (BAEA) is the only professional association for Educational Audiologists in the UK.

The associations advocate for the interests of QToDs and Educational Audiologists respectively, and the deaf CYP they support, engaging with governments and key agencies at national and regional levels. They provide ongoing professional support through continuing professional development (CPD) opportunities, as well as national and regional meetings. These initiatives ensure members have access to current information, resources, and best practice guidance.

### Prior exposure to music

Some deaf children may have had their deafness from birth identified through the newborn hearing screening programme or in early childhood through parental/professional observations of behavioural changes. Therefore, some deaf babies and toddlers may have accessed programs such as Advanced Bionics Baby Beats, Elizabeth Foundation Let's Listen and Talk – Learning through music training, Imagine Project, Language and Lullabies (Music for Deaf babies and toddlers (York)) as they are often recommended to families of deaf children and/or used by specialist professionals, eg QToDs and Ed Auds.

The Imagine Project is particularly inclusive of communication options, “Rhythm is intrinsic to sign language and is already present in body movement. Sign language is therefore a natural fit with the language of music and together they support the development of cognitive fluency” (Imagine Project, nd).

In 2025 the NDCS funded ‘An investigation into pre-school family support groups for children who are d/Deaf and their families’. The research highlighted that sessions in the study always involved songs and musical activities. Evolve Music report the positive impact of musical play in their deaf playgroup which explores musical play with 0–5-year-olds, their caregivers, and multiple agencies, including QToDs, paediatric audiologists, and deaf-sector workers. Increasingly, the focus on early intervention music programs for babies, toddlers, and preschoolers is linked to the window of opportunity in language acquisition (Gualtieri and Finn, 2022; Nelson et al, 2015; Rocca, 2015). Additionally, there are an increasing number of deaf role-models linked to music and music charity groups (see contributors and organisations lists at the end of the document for some examples).

### Older children – music technology and programmes

Some CYP may have had access to targeted music programmes through charities such as Music and the Deaf, and Audiovisability.

In 2016 the [Music and the Deaf Frequalise evaluation report](#) found that using music technology creates positive opportunities for deaf CYP “who may otherwise not have access to music making to learn, explore, develop and gain confidence as young musicians and future music leaders”. Specifically, the project highlighted development of the following skills in participants:

- use of voice and exploring vocalisation
- development of sequencing skills
- increased knowledge of information technology (IT)
- raised awareness of music theory through use of educational music software
- independent, user-led creativity and composition skills
- confidence as music makers and music creators (2016, p17)

In 2025 Audiovisability conducted research into what

music education is like for young deaf people in the UK. The research publication is pending.

In recent years, the following online material has also become available:

- **Meludia** – A fun and playful music training tool ideal for hearing implant users. The MED-EL app is designed to help deaf people develop skills to access music through a programme that increases in difficulty.
- **Music & Hearing Care Practice: PROM-T<sup>5</sup>® Foundation Course** – The course, developed by a deaf hearing therapist and music lover, is available as a short course that provides specialist training on deafness and music perception, audiological strategies, and a structured framework for rehabilitation that can be immediately translated and applied to practice with deaf CYP.

### Normal way of working in lessons and examinations

Examinations access arrangements are informed by the normal way of working in lessons.

#### Selecting music as a course option

Deaf CYP, parents/carers, subject-specialist music teachers, and specialist teachers, eg QToDs and Ed Auds should engage in conversations about GCSE/National 5 and A Levels/Advanced Higher options as early as possible to enable informed decisions to be made. Discussions to ensure all is aligned for a smooth, enjoyable music learning process and the best outcomes for the deaf CYP should include details about access to safe listening and learning spaces, potential extra tutorials, how music can be comfortably and effectively accessed, and whether these needs can be accommodated via the examination process.

For some public examinations, eg music, there may be limitations to the reasonable adjustments that can be applied due to the ethical responsibility to ensure the integrity of the assessment is not comprised, eg too many components are inaccessible due to the deaf CYP's access to sound, or other additional needs preventing accessible access. An example of this would be that reading a Braille version of music would create a reading exercise, not a listening exercise.

Open and honest discussions about the music qualification should take place as early as possible in the option selection process and throughout the programme of study. Here are some questions to consider when considering GCSE/National 5/ A level/Advanced highers/ BTEC music in the context of a deaf CYP:

- What percentage of the examination is the listening element? The awarding body may need to be contacted to clarify for the external assessment as it may be potentially high percentage in terms of listening whilst composing/mixing.
- How is the music file produced for the centre?
- What is the type of music playback system used? How is it set up? Some awarding bodies may specify, for both controlled and non-exam assessment (NEA), that

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playback is via a single workstation which allows for control by the learner and multiple playbacks of audio examples.

- What are the listening questions actually about, eg is it to identify particular instruments? The awarding bodies' controlled assessment questions may generally ask for identification of interests alongside rhythmic, melodic, and harmonic aspects. Non-exam assessment impact is most likely to manifest in mixing tasks in terms of frequency balance/dynamics.
  - What can the CYP differentiate in terms of music? For example, the marker needs to know that the candidate may not be able to identify high-frequency tones. Within the external assessment, there may be potential impact in listening questions in terms of melodic and harmonic listening. For NEAs, the potential impact is most likely to manifest in the mixing tasks.
  - What is the style of music? The specification provided by the awarding body may have stylistic forms defined and they may range fairly widely.
  - What can be allowed in lessons to aid learning vs normal way of working and in the assessment? Whilst the awarding body may deem these to be less applicable for the purpose of a music technology assessment, to support understanding of notes/rhythm in the teaching and learning context, the deaf CYP may benefit from:
    - listening to the piece played on a piano instead of an audio recording
    - use of real instruments in lessons instead of an audio recording
    - practice that combines with different types of recordings/playback strategies building towards the final exam conditions.
  - If the deaf CYP has additional needs, eg a vision impairment, can reasonable adjustments also be made to accommodate those needs, eg larger monitor/increased magnification of software user interfaces? It is recommended to engage their qualified teacher of multi-sensory impairment (QTMSI) or qualified teacher of vision impairment (QTVI).
  - For compositions, how is the coursework being presented?
  - For a piece of music presented to the deaf candidate to listen to, can they access a music notation with dynamics markings? It might be typical for audio examples to be presented, and testing may include reference to the application of musical dynamics and dynamics processing.
  - For a piece of music the deaf candidate has created, can a music notation with the relative intended dynamics be submitted? Can the accompanying audio have explanatory notes to explain to the listener/assessor anything that the composer wanted them to know about the scenario, the process, and their own unique approaches? The awarding body can clarify if the structure of the NEA would account for this. The outcome may be specified as audio as skills of notation are not tested, but learners may accrue marks via explanation of process and intention, both compositionally and in terms of production/ processing.
  - If not notated, can two mixes of the piece be prepared with a student's version and a teacher's version? It would be essential to flag this with the awarding body, in advance and make sure the only thing changed is panning/dynamics. The PROM-T5® Foundation Course includes a demonstration and discussion around this possibility. The awarding body would be able to discuss if they feel the suggested approach could be applied fairly to testing the aural component and the process. Their concerns may arise in relation to testing the NEA mixing element (which in itself requires development of a final mix from a rough).
  - In a question asking about one instrument in a group, can several versions of the piece of music be prepared by the centre or the exam body to separate out each instrument? Extra time will be needed for the student to listen to the instrument on its own, then in the ensemble piece.
  - Can music in the listening exam be streamed to the CYP's hearing technology? This would rely on individual centre technology being available, and early discussions with the awarding body is essential to understand if it will accept a streaming request. Audio files are supplied individually for playback in external assessment and for purposes of NEA which learners are working on individually on workstations and which could be set up accordingly.
  - Can they have more playback of the listening material in the examination? Can they move round the room to find the best listening space of the room? Some awarding bodies' external assessment instructions may specify that learners should be using headphones (to negate poor listening environments) and multiple playbacks are controlled by learners. However, the use of over-the-ear headphones for hearing aid users may not enable the YP to have optimal assessment to the audio, hence early discussions with the awarding body are essential.
- For deaf CYP learning classical instruments, there should be consideration given to what resources are available for children who are learning instruments, which help them with the practical exam/prep for auditions at conservatoires.

### Examination adjustments

Awarding bodies and their markers may not have been informed by expertise about the challenges of deafness and the limitations of technology. Therefore, it is recommended that specific information is shared about challenges that deaf CYP experience as a result of either their deafness impacting the auditory perspective, the limitations of their technology, or other presenting listening or processing needs. The following is recommended as information to share with music teachers, teachers, special educational needs co-ordinators (SENCOs) and additional support for learning co-ordinators:

- If deaf CYP can access any extra tutorials, the outcome

of those sessions should be documented and shared as appropriate to inform different approaches or adjustments

- Early engagement with the awarding body will help guide a suitable assessment process and understanding of weighting considerations for NEA impact and external assessment; for instance, if the exam board will deduct these marks from the total, not mark these questions, or adjust the mark to fit
- For some deaf CYP, an exemption may be considered
- Deaf CYP and their families must be made aware that an exemption is only allowed for up to 40% of a qualification. The percentage would have to be considered in terms of NEA impact and external assessment impact
- Exemptions are only to be considered as a last resort when all other arrangements have been considered and no other arrangement is possible
- Exemptions must be agreed with an awarding body prior to the examination. If agreed, the candidate will miss a component or components of an examination. This will result in a note on the candidate's certificate to say that not all of the assessment objectives were accessible
- There are strict deadlines for exemptions to be submitted.

### Preparing for examinations

For some public examinations, there may be limitations to the reasonable adjustments that can be applied. This is to ensure the integrity of the assessment is not compromised. Deaf CYP, parents/carers, subject-specialist music teachers, and QToDs/Ed Auds should engage in conversations about GCSE/National 5 and A Level/Advanced Higher options as early as possible to enable informed decisions to be made.

Some examples of where challenges may arise:

- Too many components of the NEA composition/mixing tasks are inaccessible due to the deaf CYP's access to sound
- Other additional needs preventing accessible access, such as a Braille version of music creating a reading exercise not a listening exercise
- Some classroom practices used to embed learning may not be used as a normal way of working practice for access arrangement evidence
- The deaf CYP and support staff must be made aware of which strategies are not allowed in assessments. For example, in lessons, students, due to their auditory memory skills, may pause and rewind an audio track. It should be clarified with the awarding body if the learner has control. However, in an assessment, this may not be allowed and all control of the audio track during an unheard element may be managed only by the invigilator
- Live playback of material that is inaccessible to some deaf CYP may occur in lessons but may not be permitted in assessments
- In assessments, if the learner does not have control, ie

an invigilator has control of the audio track, when can the students ask the invigilator to replay part of a track?

- With the introduction of Bluetooth-enabled hearing technology, there may be an assumption that deaf CYP are accessing music more effectively through streaming from phones and wireless accessories. However, there is a dearth of non-commercial related UK-based research on access to music in education and sound quality perception from deaf CYP's perspectives.

Some deaf CYP may benefit from accessing extra time as a reasonable adjustment.

BATOD has an arrangement with UK exam bodies to provide trained BATOD-accredited language modifiers (BALMs) of exam papers at source. This means that the modified papers are available to everyone. Out of the UK boards, only Qualifications Scotland does not have this arrangement. Modified papers should be requested a year in advance. In addition, it is often possible to ask for a live reader in an exam situation. Countries across the UK vary about what they allow, so it is best to see Joint Council for Qualifications (JCQ) regulations in England and the Qualifications Scotland arrangements in Scotland. The reader may be able to modify the language of the examination while not altering the technical terms or difficulty of the questions.

### Classroom strategies

Deaf CYP should access reasonable adjustments in music lessons that meet their needs in line with normal ways of working practice in lessons. Deaf-friendly practices include accessing classes in a good acoustic environment, seating position that enables optimal audio access and visual access to the teacher and peers, and when applicable, communication support staff. It is important to be mindful that whilst external environment noise may be minimal, there is natural background noise generated in a classroom during peer-to-peer discussions and group-work activity. A 'noisy' classroom can disrupt the deaf CYP's ability to hear what is being said. Staff should avoid speaking to the class/group when the deaf CYP is required to focus on another task. Some deaf CYP may require rest breaks due to listening and concentration fatigue. In addition, deaf CYP may benefit from pre-learning opportunities in building auditory memory for different instruments, developing confidence with the listening and production, reading music tasks, learning to tune instruments, identifying which reasonable adjustments they want to apply to the different aspects of learning music, learning how they want communication support workers to support them, etc.

Action for BATOD and BAEA – discuss with JCQ, Qualifications Scotland (previously SQA), Ofqual and the awarding bodies if deaf CYP can have the ability to replace the listening examination component with an exercise of equal value that tests the same skills. BATOD and BAEA recommend the criteria of identifying a key change in a listening exam could be replicated by identifying a key change in a printed score. There is an importance to deaf CYP understanding the language of music. BATOD and BAEA recognise the awarding bodies might accept this

recommendation potentially as a route for musical component questions where it meets the reading requirement in the specification, eg level 3, and that they may constructively challenge how this could be fairly applied to aural examples which test production outcomes (eg identification of balance, timbre, and dynamic processing changes).

### Safe space

Deaf CYP, when possible within timetable commitments or extra-curricular opportunities, should have access to a 'safe listening space' with an adult with experience in music education (support workers, communication support workers (CSWs), or music teachers). Some deaf CYP may need this space to discuss and understand why their desired instrument choice(s) may not align with the instrument that is appropriate for their deafness level. Some deaf CYP may require access to regular extra tutorial sessions. Deaf CYP may lack the means or confidence to volunteer information regarding their music experience. The ability of some deaf CYP to articulate this may be limited due to a younger age, cognitive ability, and confidence, and therefore requires a 'safe listening space' and time to explore between them and the adult. The evolving capacity of the deaf CYP should be considered in the decision-making dialogue as the child moves up through the educational phases.

Deaf CYP should be supported to share in any decision-making about their learning experiences and opportunities due to unique perception issues. They would benefit enormously from opportunities to articulate what is working and not working, as music can be uncomfortable and disorienting if it is causing recruitment issues, sound sensitivity issues, or frequency resolution issues (as just a few examples) – all of which are quite possible (to different extents and in different combinations) in classroom listening environments and depending on the intensity range of the music.

Deaf-friendly practice in learning environments includes:

- good acoustic environments
  - high-quality speakers. Playing sound through a poor speaker, including a mobile phone speaker, in a reverberant room at distance is an example of poor practice
  - seating position that enables optimal audio access and visual access to the teacher and peers, (when applicable, communication support staff)
  - the people talking avoiding speaking when the deaf CYP is required to focus on another task
  - rest breaks due to listening and concentration fatigue
  - pre-learning opportunities to build auditory memory for different instruments, which some deaf CYP may benefit from
  - developing confidence in learners for listening and production
  - support with reading music tasks and learning to tune instruments
  - identifying which reasonable adjustments are required for the different aspects of learning music
- access to subtitles, including for song lyrics, even if a support worker is providing signed communication support; this is also applicable to school concerts, other school events, and external educational events (see captioning information below for advice options)
  - a seating position close to a conductor to watch where the beats land in group rehearsals. They would also need to hear the music more than their hearing peers
  - allowing deaf CYP to move around the room during the rehearsal to identify the best place for them to hear and perform best as part of the ensemble
  - ensuring that the room used for lessons is the exam room so that the acoustics are familiar, or that the room is acoustically favourable and the student has had the chance to listen and get familiar with it
  - using the mock exams as an opportunity to ensure that the set-up is effective and making adjustments before the actual exam
  - providing more than one opportunity to try out the set-up for the examination.

Good practice would include considerations of:

- good acoustic environments
- the quality of tracks used – they should be produced by subject experts and be quality checked and reviewed in the assessment design phase to ensure consistency
- engaging the preferred options of the learner, eg direct streaming first if this is better, noting that control conditions allow for this to be undertaken via individual workstations
- distance from the speaker if a speaker is used – discussions with the awarding body would clarify if this is applicable for external assessments and how any potential impact in the recording phase of NEAs could be managed, recognising responsibility would seem to sit with the centre during controlled conditions
- sound levels of the tracks and the signal-to-noise ration of the room – whilst the awarding body guidance might specify the use of headphones (or other in ear devices) to mitigate signal-to-noise issues and facilitate individual control of sound pressure level (SPL), the CYP must be involved in the decision-making as headphones may not enable optimal access to the audio content and/or cause discomfort, and their preference may be a direct input, assistive listening device connection, etc.

### Support staff

Some deaf CYP may have access to adult support in their lessons. Considerations:

- How does the deaf CYP want the staff/CSWs to support them?
- How confident are support staff/CSWs in music lessons? Can they access continuing professional development (CPD) opportunities? How can they be involved with pre-planning with interpreters to ensure that skills are in place for learning to be maximised?
- How confident are the support staff/CSWs with troubleshooting assistive listening technology?

In educational settings, there is an increased use of technology. For deaf CYP, the technological considerations include high-quality audio equipment and streaming devices/Bluetooth/remote microphones that connect to personal amplification. Although some CYP may have a music setting on their listening device, they may report it is not effective for them. The deaf CYP may often still set their listening device to maximise speech sounds rather than the rich variety in timbre, pitch, and genre that music has. They need more explanation of their aids/implants and how they work as well as opportunities to develop an understanding of the output routing for the digital audio workstation, the software application used to record, edit, and produce audio,

The 2025 Audiovisability research study found none of the nine CYP interviewed had taken their instrument to their audiology appointment – for varying reasons – and had not tested their hearing aid when playing or accessing music.

**Deaf CYP should be respected to make informed decisions. Some opt to remove their hearing aids in their music lessons.** The 2025 Audiovisability research study found two of the nine interviewees reported that they preferred to take off their hearing aids in music lessons: *“2/9 (23%) interviewees said that they removed their hearing aids completely in their music lessons”*.

A young person may prefer not to use their hearing aid when playing some instruments eg with the trombone, the hearing aid may block the bass that the individual might be able to hear naturally.

Linking closely with the audiology department is recommended as they might be able to enable a music program for a specific instrument and a different program for singing.

### Audiology

In music education, there are many factors that need to be considered, and a bespoke set of audiological strategies is often required for introducing/rehabilitating deaf CYP to music:

- Jorgensen and Walker (2019), highlight deaf CYP with severe levels of deafness “still require gain to perceive live music and, therefore, may be expected to have different music outcomes for live music than children with less severe hearing loss. Children with severe hearing loss may also experience increased effects of compression when listening to recorded music, as the music is compressed both in the recording and by their hearing aids.” (p 916).
- Hearing aid and cochlear implant technology continues to evolve, eg Bluetooth-enabled technology, and control of settings via an app. The advanced general signal processing may mean, for some deaf CYP, that the sound quality perception for live and recorded music accessed through the aid microphones may be better than previous generations of aids. The use of Bluetooth, dependent on the tracks and how its produced and transferred, may negate acoustic issues and listening over distance.

- Engagement with clinical audiologists to determine what adjustments could be considered in the hearing aid’s music-specific program is important.
- Audiologist Marshall Chasin, Musicians' Clinic of Canada, notes, “Even reducing a higher frequency harmonic by one-half of one semi-tone, frequency compression can completely destroy the music. For speech, frequency compression works very well, but music is not speech. Music is made up exclusively of notes and their harmonics. Harmonics need to occur at exact frequencies, not sharp and not flat. Using frequency compression will alter the frequency of a range of harmonics and this altered harmonic structure would be, at best flat, and at worst highly dissonant.” (Chasin, Betterhearing.com 2025).
- Recorded playing through a basic system does not seem ideal and there appears to be a huge variance in the ability of CYP perception, which may be due to poor quality recordings or the hearing aid speaker response reaction with the audiogram.
- Oticon Play PX and Oticon Sage have the MyMusic program. MyMusic is a user-controlled program with a prescription designed specifically for music. Automatic adaptive features are also set up appropriately for music. MyMusic is useful for music played live or through speakers, and music streamed from a phone, etc. Before listening to music, live or streamed, the deaf CYP should select their MyMusic program (P2, P3 etc), which will then be applied for the streamed sound.
- Not all deaf CYP use the same hearing aid models, and access to some models will depend on the competence and maturity of the deaf CYP to independently change hearing aid programs.
- Some deaf CYP will benefit from having:
  - one brand/set of hearing aids or earmoulds for speech and a different brand/set of hearing aids for music
  - more than one music program in the same device.

### Sound system arrangement

Teachers might use sound systems for their whole class; teaching and audiological practice suggests that good quality speakers should be at a 30-to-45-degree angle of a sound source in the horizontal plane relative to the listener (azimuth) for full stereo effect. This may not be practical to achieve in the classroom environment, especially with more than one deaf CYP.

Classroom acoustics and background noise may impact the learning environment. Solutions may be recommended through room acoustic testing by an Educational Audiologist or acoustician. The deaf CYP may also wish to understand their environment through the use of ‘Live Listen’ function on their mobile device.

The following points may be issues with playing music from the teacher’s speaker. Quantity and quality of sound are both important and it is not just as simple as dialling up the volume. The eventual quality of sound is also dependent on the weakest link in the set-up.

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- The source may have been compressed for YouTube, etc.
- The sound, when bluetoothed to a Soundfield system, may lose quality.
- The computer volume levels act as a pre-amp, and if turned up too loud can cause a loss of audio quality.
- The quality of the cable for a Soundfield system group aid arrangement may impact the separate signals to the hearing aids.
- The signal may lose quality when bluetoothed to the student's aid. It should be noted that for some deaf CYP/adults, Bluetooth may enhance frequency resolution and that fine tuning of programmes such as MyMusic may also help the signal quality.
- If the deaf CYP's preference is to turn off the connection and use the Soundfield system speaker, are they aware it is less effective as it is one speaker panning?
- Without a good quality speaker, mid-frequency sounds are often a bit harsh and high-frequency sounds may lack detail.

### Audiological devices

Dependent on the manufacturer, with two hearing aids you can have full stereo sound. Hearing aids/cochlear implant speech processors are in 'stereo' and assistive technology/radio aid technology deliver in 'mono'. Mono is a flat or two-dimensional presentation, whereas stereo is a dynamic/three-dimensional format where instruments will be on one side or another and sound can move from one side to the other, giving the impression of movement.

An additional factor to be considered is how deaf CYP prefer to use their hearing aids/cochlear implants, how the aids have been set up, and the connectivity of the aids to the sound source. The actual set-up of the aids is determined by the clinical audiologists based on deaf CYP's individual preferences and needs. The majority of people working with deaf CYP will be hearing and therefore will not know how it actually sounds for deaf CYP. Deaf CYP typically have access to a QToD who will try to ascertain what the deaf CYP can hear in relation to live voice, recorded speech, and music, and will work with the deaf CYP to improve their discrimination in filling in the gaps. Subject to the local professional staffing structure, the QToD and deaf CYP may have access to an Ed Aud and, less often, to a hearing therapist. The reports by QToDs and other professionals may provide information that can help the clinical audiologists who typically set up the hearing aids in the clinic. However, the real-world experience may be different for the deaf CYP. Deaf CYP should be involved as much as possible with informed decision-making about their access arrangements for normal ways of working and, therefore, assessments. It is highly recommended that deaf CYP have access to a 'safe listening space' with an adult who has an understanding of music and can support explorative discussions to ascertain what is working and not working, what factors are at play, and whether any variables are modifiable. The deaf CYP should be

empowered to make informed decisions.

If a deaf CYP has the opportunity to be taught in school by deaf teachers or access external lessons with deaf musicians, they may be aware that some deaf adults prefer to use their analogue hearing aids as their digital hearing aids disrupt their ability to access music. As noted above, some deaf CYP may prefer not to wear their hearing aids for music lessons.

The awarding body should also be engaged as early as possible to ensure their staff understand the needs of the deaf CYP and to talk through any concerns they have regarding a deaf CYP using assistive listening technology, and the perceived impact of external testing of location in stereo field or application of panning in NEAs.

### Classroom based scenarios:

#### Assistive listening technology

It is recommended that the music teacher, deaf CYP and QToD discuss how assistive listening technology is managed when music and speech are both presented, noting that the decisions will depend on the situation and the CYP preference for each scenario. In the advance-planning discussions, the music teacher would need to clarify whether the music is the focus or is background music, and whether the music is live or recorded.

If a teacher is speaking over the music to guide the listener, the CYP might prefer that the music is played then paused and the assistive listening device is unmuted to allow for verbal explanation.

Someone singing whilst music is being played by that singer and/or others can be a tricky scenario. Whilst the singer is the important instrument in this case, hearing the singer's voice through the assistive listening device whilst other instruments are playing in accompaniment jeopardises the integrity of the performance.

#### Background music

Background music or 'classroom disco' music is challenging. Individual preference is key here: some pupils won't mind a compromise; some would prefer music over speech, and others would prefer speech over music.

#### Focused music lessons

In a focused music lesson, if the classroom with good acoustics has a sound field system, the assistive listening device could be connected to the sound field system so that the teacher only wears one microphone, whilst the pupils are provided with a handheld pass-around microphone.

If the deaf CYP has support from a specialist teaching assistant (TA), it might be decided that they might wear the pupil's assistive listening device that could be connected via a multimedia hub to recorded music and the soundfield system. The TA can mute the assistive listening device so the deaf CYP's focus is on the teacher or the music, and unmute when the teacher is not addressing the class/deaf CYP.

#### Live music

In a choir/orchestra/band rehearsal, the listener will need

access to spoken directions from the conductor. Much like in a classroom situation, the assistive listening device should then be muted after the spoken message has been delivered to allow the listener full access to the surrounding sound.

In a lesson, if the deaf CYP has access to a TA, they may want that person or a peer to use the assistive listening device to communicate.

### Listening comfort

Audiologists can install a music programme on hearing aids that is bespoke to an individual's music perception and preferences.

For CYP with hyperacusis, once the assistive listening device is in use, they can add noise cancelling headphones over the top of hearing devices if they need to.

When music and/or speech is likely to be perceived as interference, quiet breakout spaces can help combat listening fatigue.

Haptic vests are another option to assist music 'listening'.

### What is important to deaf CYP?

It is important to understand the deaf CYP's views on

- the clarity of sound
- frequency resolution
- comfort of the sound (in terms of tolerability).

Do they want the ability to

- adjust the volume
- hear their peers and/or sounds from the environment
- be included in activities and in the classroom generally – ie integrated with their peers?

Some deaf CYP may prefer to use:

- directional hearing – ie use only their hearing aids with speakers, like their hearing peers; therefore, they need the use of good quality speakers. It is recommended to work with the deaf CYP to identify optimal seating positions, and also to work with the educational setting to identify if any measures can be implemented to improve the acoustic environment and directional hearing. The speakers would need to be of good quality
- only their hearing aids – that is, the deaf CYP may decline headphones, assistive listening technology, or Bluetooth streaming to enable their access to stereo sound. Subtle differences are heard in stereo but not in mono. If using Bluetooth and listening to an Advanced Audio Distribution Profile (A2DP) stereo recording, it will be true stereo in both aids and up to 20 KHz audio bandwidth – if they are Phonak aids, that is, as Made for iPhone (MFi) or Audio Streaming for Hearing Aids (ASHA) does not support A2DP, so listening is binaural with MFi or ASHA but not the full stereo effect. However, Bluetooth quality varies in quality and the quality in hearing aids/cochlear implant speech processors may not be the ideal quality. Some deaf CYP may not wish to use Bluetooth features as these may limit their ability to interact and participate, ie it may

- only allow them to be passive in the learning encounter
- their hearing aids with high-quality headphones (examples include AKG K240 studio model version)
- hearing aids which have been replaced with high-quality headphones connected to a computer running digital signal processing (DSP) software (typical in school music departments) set-up to compensate for the deafness in a similar way to hearing aids. This could potentially overcome the limitations of the hearing aid technology that is mostly associated with the microphones and the need for portability. However, such an arrangement would require expert support to set-up from audiology along with someone who really understood the potential of whatever software is being used
- their hearing aids with direct audio input. If the direct input to EduMic contains stereo sound, the output stream would also be stereo. If the deaf CYP is using a Roger remote microphone with installed receivers 3.5 mm and direct audio, the output stream will be binaural but limited to an audio bandwidth of 16 KHz, as designed for hearing aids, so the aids will ultimately limit the output. However, if the individual uses the USB-C lead to connect to the Roger On<sup>4</sup> directly or through the dock, they can experience the full stereo effect if the track supports it, but it will still be limited to a 16 KHz audio bandwidth. A 3.5 mm connection will not support true stereo with assistive listening technology such as a Roger Touchscreen. With the USB adapter, USB-C will be better quality as it can manage higher data levels
- one hearing aid to be set up with a telecoil for more control or access to their surroundings via the other hearing aid. It is important that deaf CYP recognise the potential limits to audibility, and it is equally vital that if this is selected, the professional respects the informed decision of the deaf CYP.

### Lived experiences

McBain's (2023) University of Edinburgh master's research study 'How accessible is music to the Deaf community within the UK education system?' shares feedback from deaf young people and music teachers:

"Beatrix: Cites many inclusive teaching techniques used at school: focus on timing, one-on-one teaching, all students taught at same pace, so no one is left out, wires for pianos to connect directly to hearing aids." (p 80)

"Carol: Believes we need more inclusive teaching techniques, uses percussive instruments (such as cajon) so students can feel through their bodies, slower pace and more patience necessary and instructions need to be precise and structured. Figure notes used, flashing metronome, pea bones. Emphasises that music should be fun." (p 80)

"Importance of trust/not relying on hearing, encourages students to take HA/CI's [hearing aids/cochlear implants]

4 If the learner does not have Roger On, they may want to consider the use of a TV streamer.

## Considerations for music lessons and examinations

out. Clear plastic mouth-piece from pea bone used to show embouchure techniques, visual sources, and many games. Participant also records students and plays them back via Bluetooth connected to iPad. Slower paced lessons. Does not believe relying on vibrations is best as nothing can replace sounds. Believes Deaf people do not need technology to be musicians.” (p 81)

The views of all deaf CYP and adults are valid and this can assist a CYP in making informed decisions. For one deaf person, technology may not be needed to enable their career as a musician; for another, it might open a profession as a music technologist.

Deaf Rave, in its workshops, enables deaf CYP to develop DJ-ing (disc jockey) skills through the use of Haptic Vibrating Vests, enhancing the perception of timing. For music engagement from the youngest years, toddlers may enjoy sitting on the lap of parents/an adult and sensing the vibrations from the adult's chest when singing/having a story read aloud in a sing-song tone.

For drum practice in communal areas shared with peers sensitive to sound or who simply do not want to be disturbed by the 'noise', can the deaf CYP access a mesh drum skin? The fine metal mesh attaches to a drum kit in the same way as a normal skin. They give the user the same tactile feedback that a normal head gives but there is little to no sound feedback.

The kit can be changed into an electric kit that can be listened to through headphones with the use of a trigger pad that sits on the mesh head. The small electronic sensor converts the vibrations of the acoustic drum into electronic signals. These signals are sent to a drum module or software to trigger pre-recorded sound samples. This enables the deaf CYP to add different sounds to be played as part of a live set, thus giving greater dynamics to the traditional drum kits sound.

Cheng and McGregor (2024) propose various approaches to facilitate the learning process of deaf CYP in audio production and sound design, including sound

visualisation, haptic feedback, automated transcription, tactics in non-linear editing, and digital signal processing. They suggest, “These approaches are not overly demanding in terms of technical skills or resources and can be effectively integrated into different educational contexts and curricula. While there have been efforts to promote equality, diversity, and inclusion (EDI) in the fields of electroacoustic music and sonic art, it is important to also consider the specific needs of DHH [deaf and hard-of-hearing] students within the constraints of the mainstream music curriculum in school learning environments” (p 193). The approaches support access to learning for a deaf CYP in lessons but will require discussions with the awarding body to garner how they could be reasonably and consistently applied to controlled assessments.

### Summary

This document touches upon the many factors that need to be considered for deaf CYP to access music education and to have fair access arrangements in place for examinations. As a bespoke approach is often required for deaf CYP, and there is an under representation of deaf CYP's views on what makes music to accessible to them, we welcome case study contributions to share learning in context with the deaf education community and wider music education professional groups.

*Published March 2026. To be reviewed March 2027.*

BATOD has a UK-wide *Statutory Assessment and Examination Access Arrangement Working Group* (SA&EAAWG). The group plays a critical role in providing support and guidance, resources and shaping equitable assessment practices for deaf CYP from source with the awarding bodies to the practice in the exam room. Its remit covers statutory assessments, national examinations, and the consistency of access arrangements across the UK. For more information on the working group or if you would like to make a suggestion about this publication, please email Teresa Quail, BATOD NEO, via [exec@batod.org.uk](mailto:exec@batod.org.uk)



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## Considerations for music lessons and examinations

### Organisations

Audiovisability  
The Elizabeth Foundation  
Deaf Rave  
Drake Music Scotland  
Evelyn Glennie Foundation  
Evolve Music deaf playgroup  
Language and Lullabies (Music for Deaf babies and toddlers in York)  
Lena Batra@ Hearing Care Consulting & Training  
MED-EL Meludia  
Music and the Deaf  
Music Education Partnership Group  
Music of Life  
Musicians Union  
Musical Vibrations  
Musical Vibrations research project  
National Deaf Children's Society [Real life stories](#)  
Sense Scotland (music)

### Manufacturers

Advanced Bionics  
Cochlear  
Connevens  
Danalogic/GN Resound  
Oticon  
Phonak  
ME-DEL

### Captioning

BATOD/Jisc captioning reference group (guidance document pending)  
Caption Connect  
Caption.Ed  
Google for Education  
Microsoft  
Sound Waves Foundation  
Speaksee

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Ruth Crosby-Stewart – Educational Audiologist/QToD/ Head of Sensory Support service  
Ruth Montgomery – Founder of Audiovisability/Deaf Musician  
Sarah Hercod – Deaf QToD/Area SENDCo  
Sean Chandler – Deaf QToD/Deaf Musician  
Teresa Quail – BATOD National Executive Officer/Educational Audiologist/QToD

