# QuaverEd™

**California Q K-5**

# Creating an Accessible Learning Environment

# Creating an Accessible Learning Environment

The purpose of this guide is to support teachers in delivering instruction to students with disabilities while making the most of technology and best teaching practices to do so. Use the information in this guide to inform your instruction using Quaver K-5 Curriculum resources.

This guide is organized into five parts:

1. What is an Accessible Learning Environment?
2. Tips for Classroom Design
3. Tips for Instruction Design
4. Quaver Resource Design
5. Quaver Commitment to Accessibility

## 1. What is an Accessible Learning Environment?

An accessible learning environment is critical to the setting of an inclusive community in the music classroom. The way teachers set up their classrooms, choose materials, and plan lessons all contribute to accessibility. Being aware of our choices and how they affect students with disabilities and differences is the first step to creating this type of environment. By knowing our students and their needs, we can think of their assets and challenges as we prepare our spaces, lesson plans, and experiences. Every student needs to feel both supported and challenged every day they are at school. By thinking of their specific needs, which objectives they can best meet, and how they learn best, we are creating an accessible learning environment.

1. An important first step to creating an accessible learning environment is to read the IEPs and 504 Plans for students. Pay particular attention to the current level of functioning section as it will let you know the approximate developmental age and grade level the student has achieved in other academic work.
2. Talking with special education staff and teachers will give you insight into how a student learns and succeeds in other classes and at other times during the day and week. When we only see a student in music class, it is difficult to ascertain a total picture of who they are and how they learn.
3. For older elementary students, it is often helpful to ask the student directly how they best learn and how you can assist their learning. They are often very insightful and can offer input regarding their strengths and challenges.
4. By creating a team approach to teaching students, we develop relationships that are very helpful to the student and their overall success in music.

## 2. Tips for Classroom Design

Considering the way a classroom is organized is crucial as this is what students see first and sets the stage for what will come during the lesson. Students value spaces that allow them freedom to move and learn. It can be helpful to take a few moments to consider the classroom from the perspective of a student. Walking through the classroom from the door to see how it feels in their eyes is often helpful. Some questions to ask include:

1. Is my room clean and clear of clutter?
2. Did I place materials students will need in an organized space?
3. Have I included signage or icons to show my expectations of students?
4. Have I made space for students to stand, sit, and move freely in my room?
5. Will all my students feel physically and emotionally safe in this environment?

Students with differences and disabilities can often be profoundly affected by the organization and design of a classroom. Some students have great difficulty with change. It can be vital to them to have the same physical classroom set up each time music class occurs. If the teacher needs to make a change, advance notice is highly recommended. An effective strategy is to take a photo of the classroom prior to the change and then take another photo after the change. The teacher can then show the photos to the student, explain the change, and prepare the student ahead of time for the next class.

While it is not always possible to have an entirely clutter-free classroom, the visual of clean lines can enhance student attention and behavior. If there are cluttered areas, covering them with a solid color sheet or tablecloth can be helpful. Another strategy is to position the students so they are not facing the information or items not necessary to the current lesson.

Posting signage or icons to remind students of procedures can be highly beneficial. Using Picture Exchange Communication Systems (like Boardmaker), teachers can create two-dimensional icons to help students remember how to enter the room, where to sit or stand, and where to retrieve instruments. Another option is to take photos of students performing the procedure(s) correctly and post those as examples. These strategies also promote autonomy and independence in students.

Some students may need time to explore the music classroom alone or with other students who need similar time to become accustomed to the room either at the beginning of the school year or whenever a change to the physical classroom needs to be made. This independent time can also be used to create relationships with individual students and to reinforce that your classroom is a safe place for them to learn.

## 3. Tips for Instruction Design

Instructional design often begins with a well-crafted lesson plan. While most students will be able to meet the stated objectives for the class, some need assistance in accessing, practicing, and retaining information and skills. A good question to ask as you write your lesson plan is, "Have I considered the needs of specific students in my class who have differences or disabilities?"

One addition to a lesson plan is to add adaptations to the bottom that increase the possibility of each student succeeding in meeting the lesson objectives. A popular heuristic for this is to use size, color, pacing, and modality (visual, aural, kinesthetic) as adaptations for each lesson. Some ideas for these adaptations are:

### Size

- Remove all extraneous material from a page to create a large space for the staff and musical notation.

- Use a font that is simple and has no decorative elements.

- Use a large and bold font. You may also use a card or piece of paper to cover the words or notes not needed at a particular moment.

- While in a lesson, select the Menu button, and then Tools. Select the Hide tool to have a digital tool to hide different parts of your screen. This helps keep engagement and attention without information overloading. *See Exhibit 1a*.

- In order to control the design of an existing Quaver screen, recreate screens using the multimedia screen creation tool. *See Exhibit 1b*.

- Quaver Full Score pages include a select feature that maximizes two measures at a time. *See Exhibit 1c*.

- Project music or other assignments onto an overhead or projector. Allow students to stand near the projected image or touch the information as you are teaching.

# Creating an Accessible Learning Environment

*Exhibit 1: Adjusting size and scope of QuaverMusic resources*
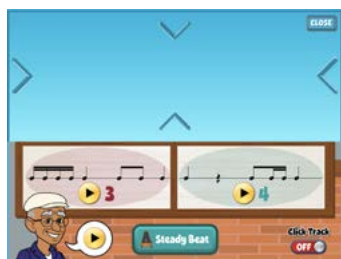


(a) The Hide tool helps students focus on one part of the screen at a time.



(b) The Multimedia Screen allows for teachers to create their own resources that work for their classroom and setup



(c) Full Score pages can highlight two measures at a time.

## Color

- Try placing colored transparencies over music or written pages to assist students in reading. Another option is to cut strips of colored transparencies for students to use as they track their reading.

- Music and text can be highlighted for ease in score and staff reading.

- For students learning to play the recorder, specific notes may be highlighted for practice. *See Exhibit 2a.*

- Some highlighters have erasers at the opposite end. These can be used to erase notes and highlight new notes or to erase highlighted lines for other students who do not need highlighted materials.

- Every animated Lyrics screen in QuaverMusic has the option to highlight lyrics for assistance with tracking. *See Exhibit 2b.*

- Notes may be color-coded at first to remove some of the steps required for note reading. For example, a student may be learning B, A, and G on the Boomwhackers®. B may be highlighted in pink, A may be highlighted in purple, and G may be highlighted in green.

- Color coding may be needed less frequently and phased out altogether. Paper hole reinforcers around the keys may be added. The reinforcers can be color-coded to match the highlighted notes in case a student needs to remember the color that matches the fingering.

- In the Quaver Full Score screens, each instrument has its own color associated with it and can highlight either each measure or each note in that color in order to help students track their part during ensemble rehearsal. *See Exhibit 2c.*

*Exhibit 2: Color coding of QuaverMusic resources*



(a) Specific notes highlighted for learning recorder notes



(b) Highlighted Lyrics pages



(c) Highlighted and color coded Full Score pages

## Pacing

- Part revisions may be necessary. Some students will be unable to read a part as written by the composer. It may be necessary to simplify a part (play one line, outline a chord, play only the first note of each measure) to meet the musical needs of a student. As the student improves, these modified parts may be adapted.

- Using QComposer Lite, teachers can simplify written parts and play them for students to hear and practice with. *See Exhibit 3a*.

- A student may need to begin with a blank score. Then, begin to fill in the page as the student is ready to understand the visual material on it. This is very helpful when the amount of material is increased slowly as the abilities of a student increase. For some students, the ancillary information on a page (title, composer, tempo and dynamic markings, pictures) can be distracting and frustrating. Placing only the amount of information a student actually needs to perform successfully may be very effective. *See Exhibit 3b*.

- Some students may need to learn less material than others. For example, learning the A section of a piece, practicing the rhythm only rather than the rhythm combined with the melody, or mastering one movement instead of four, may be the most beneficial way to begin with a student.

- Most songs in Quaver come with Printables or sheet music. Teachers have the ability to download and print out specific parts for students to follow along with at their own pace. *See Exhibit 3c*.

- For students who have sensory issues, partial participation in class or a performance may be necessary. If the pace of a class becomes too fast or the number of sounds, sights, and textures overloads a sensory system, a student may need to participate in music for a shorter amount of time, or learn less material for the concert and perform only the portions of music learned.

- Student assistants (buddies) can be valuable in the pacing process as they can repeat directions, refocus attention, and answer questions a student may have if the pace of a class or rehearsal is too fast. Having several buddies take turns working with a student may avoid "buddy burnout."

- Wait time: some students take up to 10 times the amount of time others need to process a question or a piece of information.

- When asking a question of a student, wait at least five seconds before prompting again or redirecting.

- Write a question or statement on a piece of paper, or draw a picture of the question or information. This combined with a longer wait time honors the student and the process of teaching and learning. We honor them by allowing them time to process information rather than continuing at our pace.

*Exhibit 3: Adjustable pacing in QuaverMusic resources*



(a) Simple parts in QComposer Lite

(b) A worksheet that starts with a blank score

(c) A Printable for students to follow along to a single part at their own pace

## Modality

- Use raised textured board (perhaps a rope on a board to represent a five-line staff) for students to touch as they are introduced to the concept of lines and spaces. Textured boards can be made of any material that raises the staff lines above the page. This adds a kinesthetic element to a primarily visual concept.

- Use movement activities to accompany some listening experiences. Many students learn best when their bodies are in motion: tempo, style, dynamics, and genre. These activities are enjoyed by students of all ages and do not need to be considered elementary.

    – Quaver has added several classical movement videos such as "Flight of the Bumblebee" which encourages and guides exploratory movements. *See Exhibit 4a*.

    – There is a library of choreography videos that can be found in Quaver by searching "Movement" in the Resource Manager. A choreographer can walk the teacher through how to teach the movements before teaching it to students.

    – Quaver has numerous movement suggestions for different activities built throughout the curriculum. The movement maps found in the Curriculum Features and Best Practices area of the program outline where these activities are located. *See Exhibit 4b*.

- Have students track measures in their parts or a score (possibly via a projected image) while listening to a recording. We often do this with beginning performance groups and with elementary students; however, this is still a useful activity with more experienced students.

- Quaver's highlighting tools help students track their parts while following along on the board.

- Score study is a complex yet extremely useful skill, and a multimodal approach can be an enriching experience for all students.

- Quaver's active listening maps help students listen and comprehend the classical pieces they are listening to. *See Exhibit 4c*.

- Create three-dimensional figures to represent abstract concepts (notes, rhythms, solfège, dynamic and artistic markings). Some students must touch a three-dimensional object to grasp higher-level concepts.

- A picture or written schedule to accompany the aural directions and procedures in class can ease student frustration.

- Students may excel when given the choice of modality for response to a quiz or performance test. They may also perform best when given the choice to respond in two or more ways to a question or task.

*Exhibit 4: Multiple modalities in QuaverMusic resources*
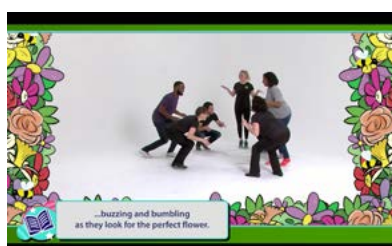


(a) "Flight of the Bumblebee" movement video



(b) Movement Maps and many other resources in Curriculum Features and Best Practices



(c) Active Listening to help students comprehend the music at a deeper level

The most exciting, and possibly best, outcome of utilizing these principles is that teaching and learning can be seen as a dynamic and changing relationship. As you apply size, color, pacing, and modality, be confident in knowing that when one adaptation is unsuccessful with a student, another adaptation may be the answer you have been seeking. It is also empowering to know that generating independent ideas for adaptations is absolutely recommended! We learn what is by what is not, and we learn what will be effective for a student by learning what is not effective for that student.

Another way to consider adaptations is to be aware of the area of challenge for a particular student. By thinking according to domains, we are less likely to hyper-label or to attribute everything a student does to their disability. Sometimes we forget that they are also children. The six domains for learning are: Cognition, Communication, Behavioral, Emotional, Sensory, and Physical. A chart that can help choose adaptations based on the area of difficulty a student may be having is here:

**CG — Cognitive**

**CM — Communication**

**B/E — Behavioral/Emotional**

**P — Physical**

**S — Sensory**

| Adaptations According to Domains | CG | CM | B/E | P | S |
|---|---|---|---|---|---|
| Use an overhead projector or computer-enhanced image to enlarge materials (music, books, sheet music) as much as possible and provide written materials for all spoken instruction. A "picture" schedule is good for non-readers and students with autism. | • | • | • | | • |
| Allow students a hands-on examination of all new materials, equipment and instruments during introduction of a concept. This kinesthetic approach combined with the visual and aural instructional elements will help students learn according to their modality. | • | • | • | • | • |
| Allow students to tape record rehearsals or lectures and tape record a test or assignment. Allow students to respond to tests or assignments on the tape, orally, or in writing. | • | • | | • | • |
| Provide music or reading materials in advance to allow time for arrangements to be made for students with special needs. | • | • | • | | • |
| Use velcro strips to help students hold mallets or small instruments. Sticks can also be wrapped with tape or foam rubber to facilitate handling. | | | • | • | • |
| Jingle bells, or cymbals can be sewn onto a band or ribbon and tied to the wrist. Straps and cords can be used to attach rhythm instruments to wheelchairs or walkers for students who may drop them during class. | | | | • | • |
| Code music, or instruments with colors or symbols to help students remember notes, or rhythms. A highlighter or colored pens/chalk can be used to help a student focus on a specific part of the music or book. | • | • | • | | • |

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| Adaptations According to Domains | CG | CM | B/E | P | S |
|---|:---:|:---:|:---:|:---:|:---:|
| A felt board, or other raised texture board can be used with heavy rope to demonstrate the concept of a staff to students who learn kinesthetically, or are visually impaired. | • | • | | • | • |
| Provide a written rehearsal schedule for students to follow. These can be on the chalk or bulletin board or placed in folders. | • | • | • | | • |
| Individualize some assignments for students who may not be able to complete the quantity of homework other students can. Check the IEP to make sure you are following the modifications listed. | • | • | • | • | |
| Make use of computers for students who need extra drill and practice. | • | | • | | • |
| Separate rhythmic and melodic assignments until students with special needs can combine the two. | • | | | • | • |
| Limit the use of words not yet in the student's vocabulary and be consistent with the terminology you do use. | • | | | | • |
| Allow students to help plan their own instructional accommodations and be a partner in the process. | • | • | • | • | • |
| When preparing music for use by students with special needs, several adaptations can be made. The teacher can indicate tempo and meter, mark the student's part, allow students to highlight music, Write measure numbers and breath marks in the student's part, create visual aids for difficult words, and provide visual cues for score markings and phrase lengths. | • | • | • | | • |
| When using written assessments with students with special needs, provide accurate and complete study guides. Help focus study efforts on important events, ideas, and vocabulary. Use this tool to help students organize and sequence information. | • | • | • | | |
| Use short tests at frequent intervals to encourage students to work at an even pace rather than postponing the study of a large amount of material until just before a long exam. This also provides a student "some room" to perform poorly on a single test without significantly compromising the grade for the entire marking period. | • | • | • | | |
| Allow students to use a word bank. They may remember concepts, but have difficulty recalling spelling. | • | • | • | | |
| Vary the style of test items used. Using a variety of test items will prevent a student from being unduly penalized for having difficulty with a particular type of question. | • | • | • | | |

| Adaptations According to Domains | CG | CM | B/E | P | S |
|---|---|---|---|---|---|
| Place a rubber strip on the back of a ruler or use a magnetic ruler to help students measure or draw lines without slipping. Use adhesive-backed velcro to attach items to a desk or wheelchair lap tray. | • | | | • | |
| Allow students to use pens (felt tip) or pencils (soft lead) that require less pressure or use a computer to complete assessments or assignments. | | • | • | • | • |
| Wait to prompt students for verbal answers to questions after least 5 seconds have passed. They may need a longer period of time to process the question and determine an appropriate response. It may help to "call on" the student only when his/her hand is raised. This may lower any possible frustration level and prevent student embarrassment. | • | • | • | | |
| If an accommodation or modification is listed in the IEP, it must be followed by all teachers. | • | • | • | • | • |
| Create a special seat or seating area so that a student knows and can expect where he will sit during class (chair, disc or carpet square, taped area, special mat). | | • | • | • | • |
| Allow movement during class from one chair or special seating place to another. | | | | • | • |
| Allow a student to participate for a small amount of time. Increase this time slowly as the student is acclimated to the classroom routine. This may begin with the start of class or the end of class depending on the student and her preferences. | | • | • | | • |

## 4. Quaver Resource Design

Technology can also be an incredible support for you as you seek to create and foster an accessible learning environment. Online curriculum resources like those included in QuaverMusic enable you to address the needs of diverse learners and adapt your lessons to best meet their needs. In addition to the examples included throughout this document, below we explore more ways the interactive resources and functionality in QuaverMusic have been designed to support you in teaching children with disabilities.

- All feedback intended for children to understand is provided with both an audio and visual cue.
- Both uppercase and lowercase options are available to support early readers possible visual processing and other learning differences.
- Lyrics on song activities and in stories are highlighted and include graphic representations of key terms.
- All lyric screens and printable lyric scores have large sized print for visually impaired students.
- Notes and measures in the Full Score screen have a highlighting option to help students with tracking needs.
- Highlighted notes and measures are highlighted in different colors for those with visual impairments.

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- Drag and drop functionality is used to allow ease-of-use for children on classroom devices.

- Learning Centers include a variety of tactile options for children with sensory disabilities.

- Lesson Plans include a variety of questioning techniques to guide teachers in teaching all children. *See Exhibit 5a.*

- The Hide tool found in all lesson plans allow teachers to share content on the screen with students at a pace that is more digestible to them.

- Printable sheet music is available for all parts to a song to give students the ability to focus on just their part.

- Teachers have the ability to create separate lessons and assignments for students and send them to individual students privately to help differentiate instruction and provide content that is adjusted to their individual needs. *See Exhibit 5b.*

- The QR code/link feature allows teachers to provide different leveled content to students during instruction time. *See Exhibit 5c.*

- All videos have closed captioning for those with hearing impairments or are ELL students. *See Exhibit 5d.*

- Most interactive games give students a gentle try again to find the right answer instead of immediately marking it as incorrect. *See Exhibit 5e.*

- Every ClassPlay song has volume controls to turn up or down the volume on the vocals or track for students with hearing impairments. *See Exhibit 5f.*
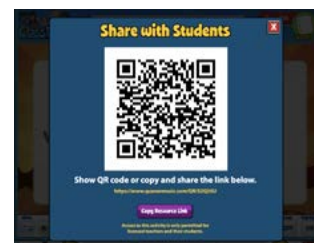
*Exhibit 5: QuaverMusic resource design*
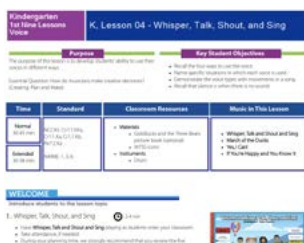


(a) A Lesson Plan loaded with guidance for teachers

(b) QuaverMusic's Teacher Admin panel to help organize and differentiate instruction

(c) A QR Code for leveled content during instruction time

(d) Videos with closed captioning for those with hearing impairments or ELL students

(e) Gentle and inviting responses to incorrect quiz answers

(f) ClassPlay song with volume controls

# 5. Quaver Commitment to Accessibility

As an online curriculum resource, QuaverMusic is committed to complying with existing web-based accessibility requirements. While Quaver resources are not intended to be used by a child independently of a teacher, these guidelines can still help ensure an accessible learning environment for all.

## Screen Controls

- Zoom (enlargement) features are available from the browser
- Brightness/contrast controls are available from the system settings and will not be overridden by the program
- Start/Pause/Stop buttons are available for all time-sensitive content
- Volume controls are provided to increase audio amplitude of different tracks where necessary, otherwise the system volume setting can suffice
- Functionality controls are consistently named and in the same location
- Keyboard controls will be available for all core functions, such as navigating between screens or returning to the home page
- When a control is activated, there are visual and audio indications the action is being taken

## Screen Layouts

- Plain language text is used throughout the program
- Layouts are logically and consistently arranged
- Context and orientation language for the curriculum is provided in the Teacher Notes
- User interface and maps are designed to ease navigation through the site
- All icons and actionable buttons are large and accompanied by text, unless the control is a commonly-used standard, such as a triangle for a play button
- Screen images without text descriptions or captions can be explained by the teacher
- Color is not the sole determinant of required information

## Video/Animations

- All videos with speaking audio have closed captioning
- Keywords are also highlighted in text in video episodes
- Animations that need explaining are also described in text

## Audio/Music Tracks

- Lyrics are highlighted and synchronized in songs
- Visual Animations are provided
- Transcripts of audio instruction or other information are provided

### Notifications

- All notifications of correct or incorrect answers are provided both aurally and textually

- Our design minimizes unintentional actions by the user

### Flashing Objects

- No buttons or other objects will flash at a rate between 2 Hz and 55 Hz

These are some of the conventions we use to review our resources. The process is ongoing. QuaverEd, LLC is fully committed to providing online instructional materials that are in compliance with common accessibility standards. We will comply with the accessibility guidelines of both the Federal government, as described in Federal Rehabilitation Act, Section 508, and the World Wide Web Consortium guidelines, as described in W3C Web Content Accessibility Guidelines (WCAG2.0).

In addition, as new guidelines are issued, we will comply with those as well to the extent applicable to our product. Our intent is to be accessible to all persons with disabilities. In many respects, we already are in compliance.

## Citations

*Teaching Music to Students with Special Needs: A Label-Free Approach* (2nd edition) Hammel, A. and Hourigan, R. 2017 Oxford University Press

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