COSMO Music

MUSIC GUIDE

Introduction

Welcome to Cosmo, a plug and play inclusive digital musical instrument revolutionising music education for students with SEND. Through the innovative combination of touch-sensitive Bluetooth controllers and specialised iPad software, Cosmo enables students with cognitive and sensory issues, limited physical mobility and low vision to engage with music in ways previously challenging or impossible.

The platform allows students to play instruments, learn notes and scales, explore musical concepts and create compositions, all through playful and socially interactive experiences. Through the integration of multisensory feedback Cosmo significantly improves motivation and engagement in learning and improves individual outcomes for all students.

Its adaptable interface and diverse activities cater to individual needs, making music education enjoyable, inclusive and achievable for all students.

Acknowlegment to:

Thank you to our friends at Clarinet Moves, Lancashire and Leicestershire Music Services - Ben Sellers, Ben Rapp, Sarah Share, Anna Wolloff - for providing content and guidance on this resource as well as their continuous support in shaping Cosmo for music.

A member of TiME

With Cosmo you can:

Play a variety of instruments: Utilise our accessible controllers to play piano, guitar, and more, making music-making enjoyable and inclusive.

Learn notes and scales: Engage with vibrant colours and tactile controllers that simplify the learning process for notes and scales.

Explore musical concepts: Delve into musical structures, styles, and composition techniques to enhance your understanding of music.

Record and loop sounds: Capture sounds and create loops for a dynamic music-making experience.

Access GarageBand & ThumbJam: Use Cosmo as a MIDI controller in popular music making and MIDI apps, expanding your creative possibilities.

In this educator guide you will:

Music with Cosmo: The Why

Accessible music sessions with Cosmo offer significant advantages for students with SEND. These sessions not only enhance musical skills but also foster social interaction and communication within a safe and enjoyable setting.

Emotional and Social Development

Engaging in music activities such as My Voice and Sampler allows students to safely explore their feelings, facilitating emotional expression and sensory regulation. Group activities like My Orchestra and Team Alertness promote essential skills such as Turn-Taking, listening and collaboration, which help students build social connections and improve their communication abilities.

Cognitive Skills

Music has been shown to enhance memory retention. Activities like Sampler and Copy Me enable students to memorise sound sequences and colours. Additionally, listening to music can boost concentration levels and improve focus during learning tasks as its multi-sensory nature engages various brain areas. Through activities like Toggle, Exploration and CosmoTube allow students to play their favourite music with a simple touch giving them a sense of agency and independence.

Physical Development

Rhythmic engagement in music helps refine motor skills. Activities involving clapping or playing percussion instruments promote coordination and physical engagement, which is particularly beneficial for students with motor impairments. The Improvisation activity allows students to learn rhythm by simple tapping of the Dots. The app allows for adjusting the touch sensitivity level, which helps students improve muscle tone, strength and endurance.

Speech and Language Development

Music engagement has been associated with advancements in speech and language skills. Singing offers a melodic framework that aids language acquisition, making it more accessible. Non-verbal students may utilise familiar tunes to communicate basic needs, gradually enhancing their language capabilities. Activities such as My Voice and Sampler allow students to record voices and sounds, offering opportunities for building sentence fluency and expressing choices and emotions.

Cosmo Music Activities

Activity Name	Skills	How to Play
 *Exploration*	Cause and effect, sound awareness, intentional interaction, basic rhythm response	Press the Dot to play a selected music track. Release your hand to pause it.

Setup

Select Music Track; Select the Dot Colour; Toggle Effects On/Off

Play Ideas

- Individual: Select a Music Track from the list or iTunes / Apple Music. Press Play. Press and hold to expose your student to the music around them. Model the behaviour and encourage your student to press and hold to learn basic cause and effect relationship
- Group: Freeze Dance: Hand the Dot to one student. Encourage the student to press and hold while other students need to dance around the room. When the music stops, the students must freeze until the music resumes. This activity promotes physical movement, listening skills and reaction time.

Activity Name	Skills	How to Play
 *Toggle*	Cause and effect, sound awareness, intentional interaction, basic rhythm response	Press the Dot to play a selected music track. Press the Dot again to pause it.

Setup

Select Music Track; Select the Dot Colour

Play Ideas

- Individual: Select a Music Track from the list or iTunes / Apple Music. Press the Dot to play, and press again to pause the music to expose your students to the sounds around them. Model the behaviour and encourage the students to press the Dots to learn basic cause and effect relationship
- Group: Follow the steps from the individual activity and pass the Dot around to encourage students to take turns and listen to the music being activated by other students.

Activity Name	Skills	How to Play
 *My Orchestra*	Musical composition, rhythm, turn-taking, collaboration, leadership	Tap a Dot to turn on an instrumental loop. Tap it again to turn it off. Press the Dots to mix and match different loops.

Setup

Select Music Track; Select Number of Dots (This number indicates the number of instruments you will be able to play.)

Play Ideas

- Individual: Select the Music Track from the list. Ask the student to press one Dot and listen to the sound of the instrument. You can ask the student to name that instrument, show how to play it or use a flash card to match the sound to the image of the instrument.
- Group: Hand each Dot to a different student. Name one student to be the orchestra conductor. Ask the conductor to point to different students or say their names to activate their instruments.The conductor can point again to ask the students to turn their instruments off.

Activity Name	Skills	How to Play
 *Improvisation*	Musical notation, scales, composition	Assign the music notes to the Dots. Tap the Dots to play the notes and compose music.

Setup

Select Instrument; Select Notes; Select Music Track; Select Number of Dots (This number indicates the range of notes you will be able to play.); Adjust Volume of the Dots and Backing Track.

Play Ideas

- Individual: Press the Dots to play musical notes and expose your student to the different sounds of notes. Model the behaviour and encourage the student to press the Dots to learn sound recognition and intentional sound production.
- Group: Hand each Dot to a different student. Follow the instructions from the individual activity to encourage students to produce music as part of the team. Students can take turns pressing their Dots or play simultaneously to combine sounds.

Activity Name	Skills	How to Play
 *Music Connect (ThumbJam)*	Musical notation, scales, composition.	Access ThumbJam with Dots. Produce compositions individually or in a band.

Setup

Select Notes; Select Music Track; Select Number of Dots (This number indicates the range of notes you will be able to play.); Adjust Volume of the Dots and Backing Track. Press Play > Redirect to app. Go to Prefs -> MIDI Control -> MIDI Input Connections. Enable Note Input in the Network Session. Select an instrument. Press the Dots to play the selected instrument.

Play Ideas

- Individual: Press the Dots to play musical notes and expose your student to the different sounds of notes. Model the behaviour and encourage the student to press the Dots to learn sound recognition and intentional sound production.
- Group: Hand each Dot to a different student. Follow the instructions from the individual activity to encourage students to produce music as part of the team. Students can take turns pressing their Dots or play simultaneously to combine sounds.

Activity Name	Skills	How to Play
 *Music Connect (GarageBand)*	Musical notation, scales, composition.	Access GarageBand with Dots. Produce compositions individually or in a band.

Setup

Select Notes; Select Music Track; Select Number of Dots (This number indicates the range of notes you will be able to play.); Adjust Volume of the Dots and Backing Track. Press Play > Redirect to app. Select an instrument. Press the Dots to play notes.

Play Ideas

- Individual: Press the Dots to play musical notes and expose your student to the different sounds of notes. Model the behaviour and encourage the student to press the Dots to learn sound recognition and intentional sound production.
- Group: Hand each Dot to a different student. Follow the instructions from the individual activity to encourage students to produce music as part of the team. Students can take turns pressing their Dots or play simultaneously to combine sounds.

Activity Name	Skills	How to Play
 *Turn - Taking*	Sound awareness, anticipation of turns, turn-taking, attention	Tap the Dots to toggle on a selected music track. Wait for the music track to pause and another Dot to light up. Press the illuminated Dot to re-activate the music track.

Setup

Select Music Track; Toggle Random ON/OFF; Toggle Sound ON/OFF; Select Number of Dots; Adjust MIN and MAX Duration.

Play Ideas

- Individual: Place the Dots in front of your student. Encourage the student to closely observe the Dots. Press Play. As soon as a Dots lights up, press it and listen to the activated music track to model the behaviour for your student. As soon as the music stops, look for another lit up Dot. This time, ask your student to press to re-activate the music.
- Group: Hand each Dot to a different student. Press Play. Ask the students to observe how the Dots light up. Whenever a Dots lights up, the student who sits closest has to press it as soon as possible to activate the music. Wait for the music track to pause and another Dot to light up. Press the illuminated Dot to re-activate the music track.

Activity Name	Skills	How to Play
 *Sampler*	Awareness of distinct sound samples, sound production, vocalisation, self-expression, musical composition, articulation	Record your voice, sounds or import files from your Apple library. Tap the Dots to play your recordings back.

Setup

Select Microphone Sensitivity; Select Number of Dots (This number indicates the range of words / sounds you will be able to record.); Adjust Recording Duration

Play Ideas

- Individual: Ask the student to imitate sounds of different animals e.g. cow, cat and rooster. Press Record and ask the student: What does the cow say? Ask the student to press the lit up Dot to play their imitation. This activity teaches imitation and recognising different sound samples.
- Group: Hand each Dot to a different student. Follow the steps from the individual activity and pass the Dot around to encourage students to take turns to record their sounds.

Activity Name	Skills	How to Play
 *My Voice*	Awareness of distinct sound samples, sound production, vocalisation, self-expression, articulation	Record sounds and play them back with special sound effects by tapping the Dots.

Setup

Select Microphone Sensitivity; Toggle Effects ON/OFF; Select Number of Dots (This number indicates the range of special effects you will be able to add to your recording.); Adjust Recording Duration

Play Ideas

- Individual: Ask the student to think about a word / sound they would like to record. Once they are ready, place the iPad speaker close to the student's mouth and press Record. Ask the student to press the Dots one by one to play back their recording with added special effects. This activity encourages students to vocalise, express themselves and intentionally produce sounds.
- Group: Hand each Dot to a different student. Follow the steps from the individual activity and pass the Dot around to encourage students to take turns to record their sounds. Students may choose to record their names or answers to a teacher's question, e.g. what's your favourite musical instrument?

Activity Name	Skills	How to Play
 *CosmoTube*	Cause and effect, audio-visual discrimination, media navigation	Learn to navigate through media files with this accessible in-app playlist. Use from one to three Dots to play, pause and select the next video in the playlist.

Setup

Select Video or Add a new video from YouTube; Select Number of Dots; Toggle Sound ON/OFF

Play Ideas

- Individual: Start with one Dot. Select a video. Press the Dot to switch forward through the videos. Once you've found the video you'd like to play, release your hand and wait for the video to start. Model the behaviour for your student by showing them how they can navigate through the video using one button. Once they're ready to progress, you can add two more Dots to enable your student to Go Back and Play.
- Group: Create a map of different countries or cultures, each associated with specific music styles (e.g., African drumming, classical symphonies). Students use CosmoTube to explore videos related to each culture's music, discussing instruments and rhythms.

Activity Name	Skills	How to Play
 *Team Alertness*	Sound awareness, anticipation of turns, turn-taking, attention, waiting	Tap the Dots to toggle on a selected music track. Wait for the music track to pause and another Dot to light up. Press the illuminated Dot to re-activate the music track

Setup

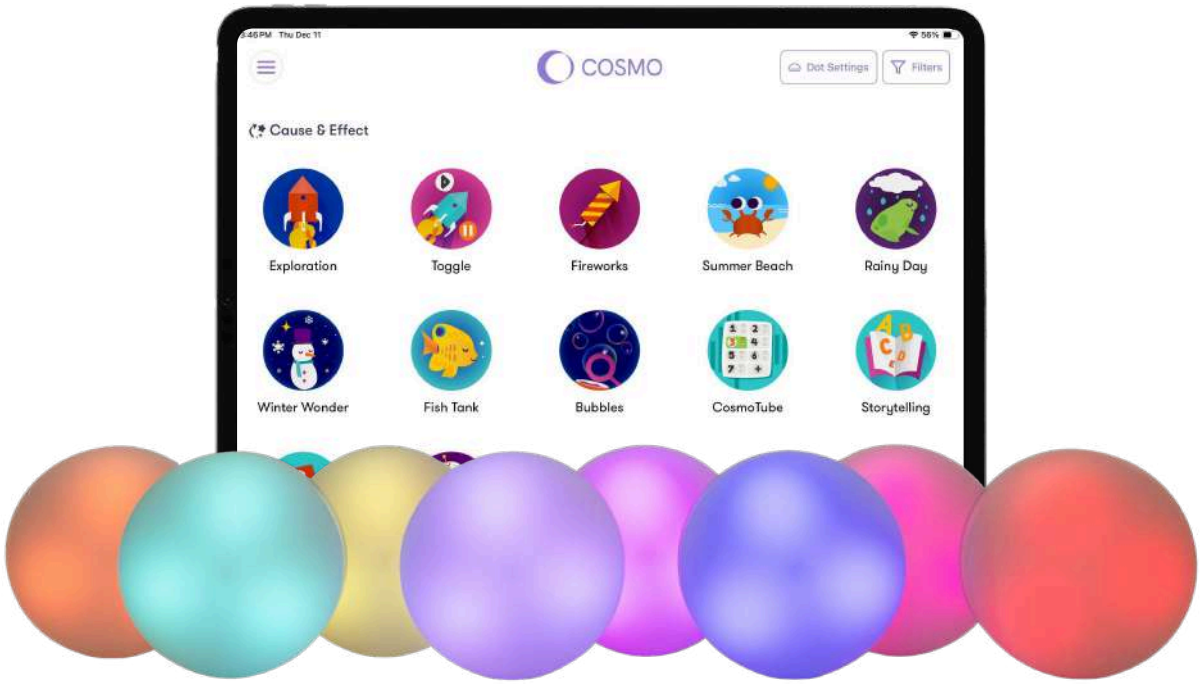
Select Music Track; Toggle Random ON/OFF; Toggle Sound ON/OFF; Select Number of Dots; Adjust Notification Time.

Play Ideas

- Individual: Place the Dots in front of your student. Encourage the student to closely observe the Dots. Press Play. As soon as a Dots lights up, press it and listen to the activated music track to model the behaviour for your student. As soon as the music stops, look for another lit up Dot. This time, ask your student to press to re-activate the music.
- Group: Hand each Dot to a different student. Press Play. Ask the students to observe how the Dots light up. Whenever a Dots lights up, the student who sits closest has to press it as soon as possible to activate the music. Wait for the music track to pause and another Dot to light up. Press the illuminated Dot to re-activate the music track.

Explore 28 more activities for physical, cognitive and social-emotional development. All activity descriptions are attached to this document.

Get Started



1. Download the Cosmo Learning app (iPad iOS 15+ required).

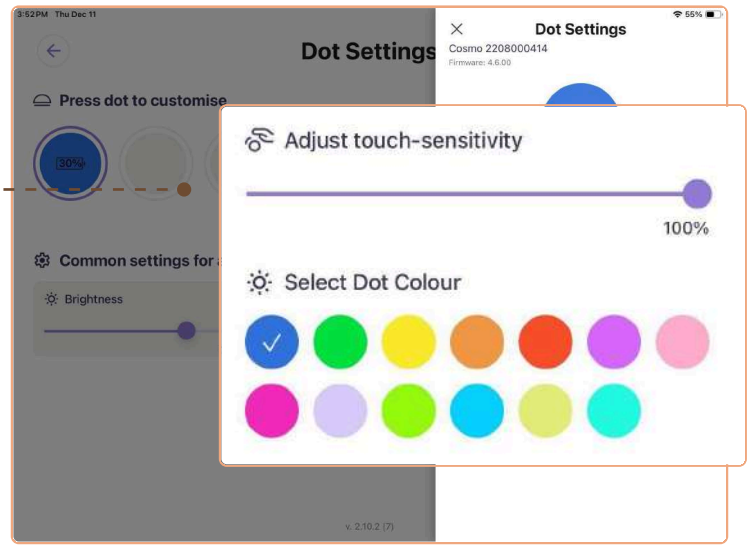
- App Name: Cosmo Learning
- Version: 15+

2. Enable Bluetooth on your iPad.
3. Open the Cosmo Learning App
4. Go to Dot Settings.
5. Press the blue button at the bottom of each Cosmo Dot.
6. You will notice the Dots and the icons on the screen lighting up in 1-8 colours
7. Here you can check if your Dots successfully connected to the app.
8. Go back to the main screen and open any game. Your Dots will light up in 1-8 different colours.
9. If the Dots don't light up:

Check Bluetooth connection on the iPad → Enable Bluetooth for the Cosmo Learning app on the iPad settings → Restart the Dots → Restart the App

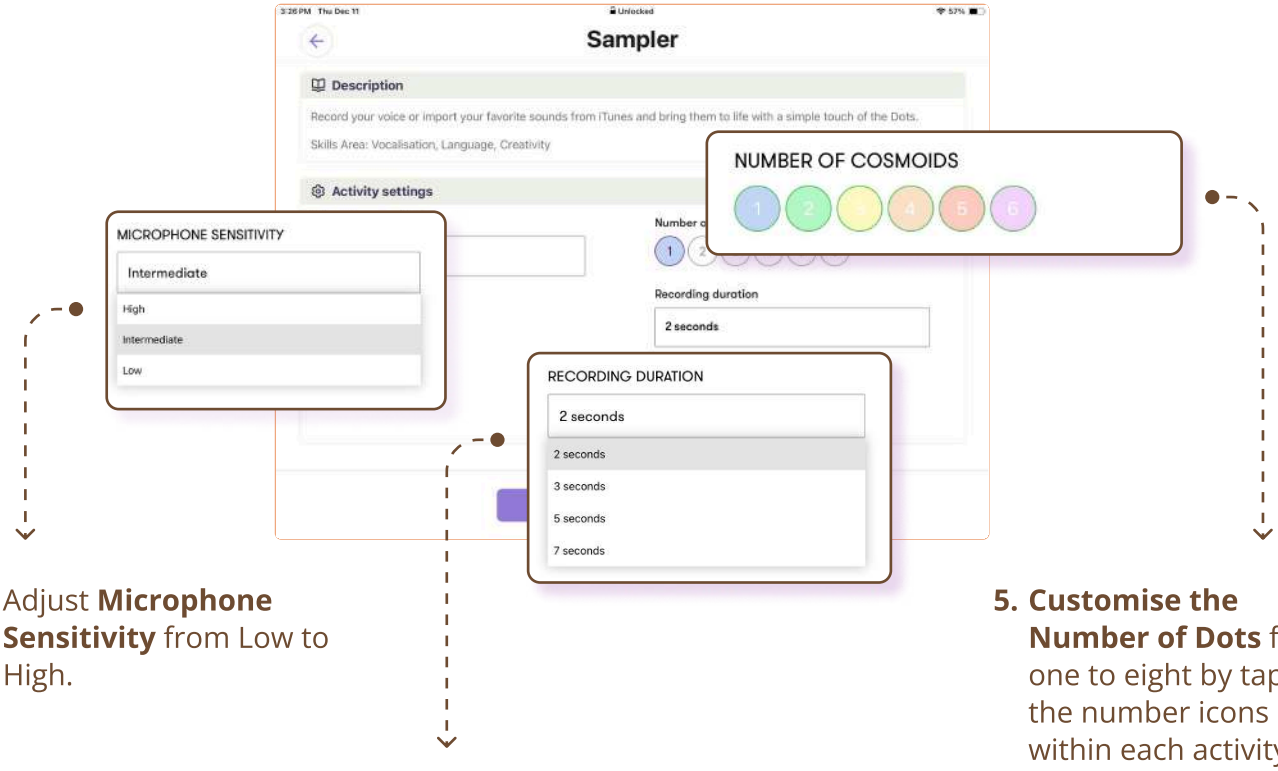
8. Go back to the **Advanced Settings.** Your Dots should be now connected to the app.
9. Go back to the main screen and open any game. Your Dots will light up in one to six different colours.
10. Customise the activity settings and press **Play**.

How to Customise the Activities



1. **Adjust touch-sensitivity** of the Cosmo Dots from 1-100% in Dot Settings.

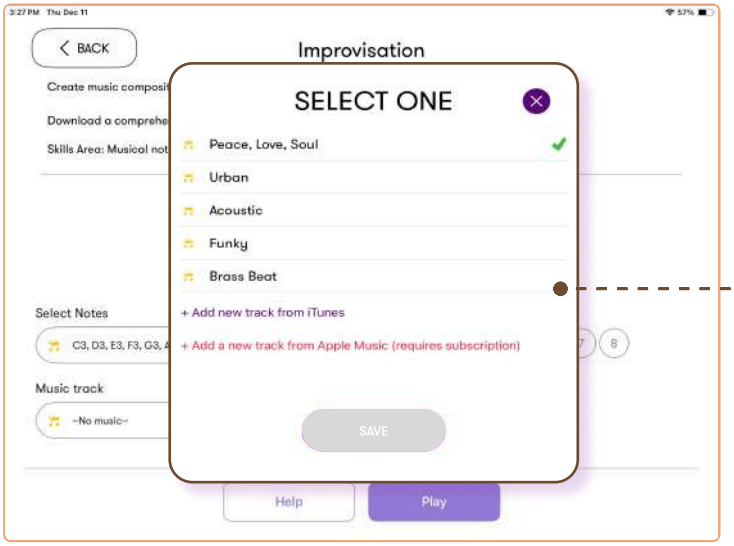
2. **Change the colours and brightness** of your Cosmo Dots in Dot Settings.



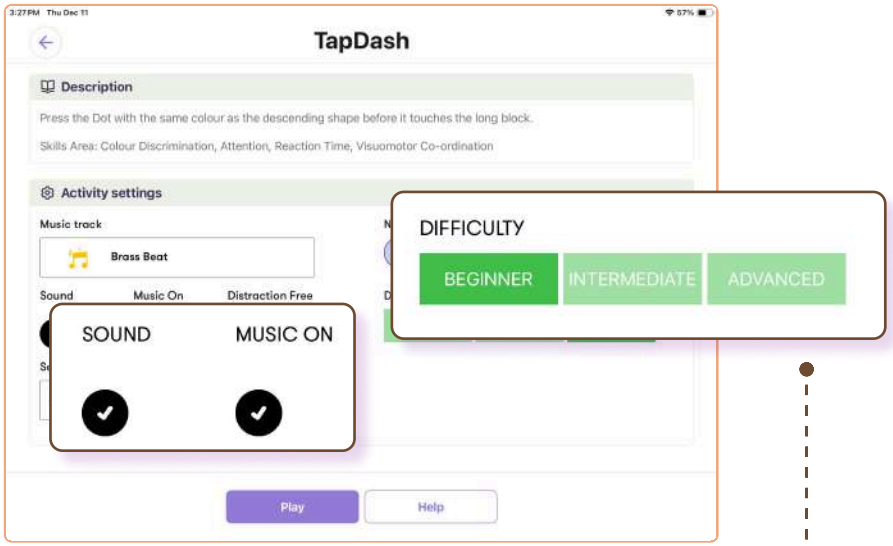
3. Adjust **Microphone Sensitivity** from Low to High.

4. Adjust the **Recording Duration** from 2 to 7 seconds.

5. **Customise the Number of Dots** from one to eight by tapping the number icons within each activity

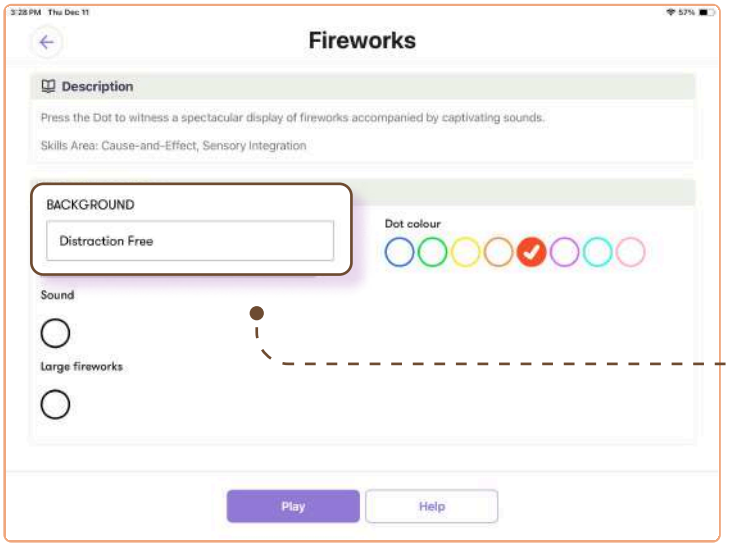


6. Import your students' favourite tracks from iTunes or Apple Music in the **Music Track** field within each activity.



7. Toggle **Sound** and **Music** ON/OFF.

8. Choose from **Beginner, Intermediate and Advanced** difficulty levels. Go to the Help section within each activity to learn more about the difficulty levels.



9. Activate **distraction-free settings** of the Cosmo activities e.g. select Distraction Free background in *Fireworks.*

Engagement Model

Engagement Model Area	What to look for	With Cosmo
Exploration	The pupil builds on their initial reaction to their playing to explore further. The pupil responds to different present sounds in different ways, e.g. by playing some fast and some slow, or playing some sounds more than others.	The pupil repeatedly taps the Dot to play tracks in Toggle or Exploration. The pupil responds differently to instrumental loops in My Orchestra.
Realisation	The pupil understands the effect that their movements are having on creating or changing the sound. The pupil shows an awareness of the different preset sounds in the instrument, and/or displays a preference between sounds.	The pupil recognises that by pressing the Dots they can produce sounds in activities such as Toggle, Improvisation and My Orchestra. The pupil recognises that by pressing and holding the Dot, they can increase the sound duration in Exploration. The pupil responds differently to instrumental loops in My Orchestra, demonstrating their musical preferences.
Anticipation	The pupil shows excitement when the instrument is presented and/or a backing track begins to play, anticipating the entry of the beat or their entry into the music. The pupil responds to visual prompts to start/stop, play slowly/quietly. The pupil engages in turn taking or 'call and response' with an adult.	The pupil shows excitement when the backing track begins to play in Improvisation, anticipating their entry into the music. The pupil engages in 'call and response' in Turn-Taking and Team Alertness.

Persistence	The pupil plays along to an entire backing track or live-accompaniment. The pupil sustains engagement for longer periods over time. The pupil uses movements that require determination and sustained effort.	The pupil presses the Dot to play music in Exploration for an increasing period of time. The pupil plays along to a backing track by pressing the Dots in Improvisation.
Initiation	The pupil attempts to control other aspects of the instrument, e.g. choosing a sound on Garageband. The pupil plays the instrument without direction or prompts. The pupil begins to play more musically, e.g. by playing to a regular pulse.	Through Improvisation, the pupil chooses their preferred instruments. Via Music Connect the pupil can access 3rd-party music apps such as GarageBand and ThumbJam.

Source: Cosmo Teaching Guide, Lancashire Music Service.

Engagement Level	Reactive	Proactive	Interactive
Level 1	Exposure to basic sounds and visual cues associated with sound-making, especially through simplified sensory activities (e.g. *Exploration, Toggle, Fireworks, CosmoTube*).	Basic activation through unintentional movements, where sounds may be produced or controlled coactively with guidance. (e.g. *Exploration, Toggle, Fireworks, Bubbles*).	Sensory response prompted by practitioners modeling interactions through sound, suitable for early sensory stages (e.g. *Exploration, Toggle, Fireworks, Bubbles*).
Level 2	Awareness of sound and visual interactions, where	Intentional sound production emerges, with users able to	Sensory interactivity facilitated through sound with simple

	students begin recognizing simple sound patterns and lights. Cosmo supports this through straightforward, cause-and-effect interactions in activities like *Exploration* and *Toggle*.	control sounds in activities like *Turn Taking* and *Toggle*, supporting autonomy.	multisensory contexts, allowing students to engage through basic turn-taking and individual sound exploration. (e.g. *Turn-Taking, Rainy Day, Bubbles*).
Level 3	Recognition of patterns as students respond to simple musical structures and beats, which appear in various activities like *Improvisation* and *My Orchestra.*	Intentional pattern creation through repeated sound-making in activities such as *My Orchestra* and *Turn Taking*, supporting the intentional creation of musical motifs.	Dialogues in sound foster turn-taking through recognisable patterns, allowing students to build relationships with peers through musical exchanges and group-led direction (e.g. *My Orchestra, Improvisation, Sampler).*
Level 4	Engagement with motifs where students recognise and respond to short, recognisable musical segments, responding to prompts and combining sounds (e.g. *My Orchestra)*	Motif creation and coherent combination of motifs or sounds, as students develop basic compositions and repeat short phrases in activities like *My Orchestra, My Voice and Sampler*.	Dialogues in sound foster turn-taking through recognisable patterns, allowing students to build relationships with peers through musical exchanges and group-led direction (e.g. *My Orchestra, Improvisation, Sampler*).

Level 5	Structural recognition of whole pieces and anticipation of prominent song sections, allowing students to attend to complex pieces in activities like *MIDI Improvisation* and *My Voice.*	Composition and improvisation by creating short, simple pieces with specific moods, allowing flexibility with rhythm and variation, especially through *MIDI Improvisation*.	Group improvisation as students perform or improvise with others in ensemble-like experiences, adjusting and building on peers' material in simple, structured ways.
Level 6	Mature musical awareness of complex music, recognising styles, tempo, and cultural expressions as students progress, especially within advanced *MIDI* usage using *Music Apps.*	Expressive interpretation where students use Cosmo to compose in culturally familiar styles and convey effects, exploring advanced elements of MIDI-based improvisation using *Music Apps.*	Expressive interpretation where students use Cosmo to compose in culturally familiar styles and convey effects, exploring advanced elements of *MIDI*-based *Improvisation* and using *Music Apps.*

KS1 & KS2 National Curriculum

National Curriculum Key stage 1

- **Play tuned and untuned instruments musically.** Activities like *My Orchestra* and *Improvisation* allow pupils to play a range of instruments and music genres and connect to *GarageBand* and other *MIDI* apps to expand on their skills.
- **Use their voices expressively and creatively** by singing songs and speaking chants and rhymes. *My Voice* and *Sampler* allow students to record voices and sounds to build chants and rhymes.
- **Experiment with, create, select and combine sounds** using the inter-related dimensions of music. Sampler, *My Orchestra* and Improvisation give students the opportunities for more advanced music making.

National Curriculum Key stage 2

- **Play and perform in solo and ensemble contexts**, using their voices and playing musical instruments with increasing accuracy, fluency, control and expression through *Improvisation*, the MIDI mode, *Sampler* and *My Orchestra*.
- **Improvise and compose music** for a range of purposes using the inter-related dimensions of music through *Sampler*, *My Orchestra*, *Improvisation* and the MIDI mode.
- **Listen with attention to detail and recall sounds** with increasing aural memory through *Sampler*, *Improvisation* and *My Orchestra*.

Research

A collaborative research explores how Cosmo used in music education supports students' learning.

A collaborative study by Dr. Lila Kossyvaki from the University of Birmingham and Dr. Sara Curran from Cambridge University investigated the impact of technology-mediated music-making on children with autism and intellectual disabilities and published their findings in a research paper, titled "The role of technology-mediated music-making in enhancing engagement and social communication in children with autism and intellectual disabilities,"

The researchers presented their methodology and findings in a webinar, providing valuable insights into this innovative approach to music education and therapy for children with special needs. This research contributes to the growing body of evidence supporting the use of technology in inclusive music education and therapeutic interventions.

Case Studies

Neurologic Music Therapy at Artez Music Conservatorium

Researchers from the ArtEZ University of the Arts study how music technology, including Cosmo, can enhance Music Therapy practice.

Researchers at ArtEZ University of the Arts investigate the potential of music to create new neural connections and improve quality of life, as well as ways to integrate technology into music-making. They train Music Therapy students to apply technology in clinical and SEND educational settings.

In their recent book, "Navigating Music Technology," Marijke Groothuis, Carola Werger, and Artur Jasschke examined Cosmo and other practical applications of music technology in music-based therapeutic interventions and professional training. The book explores how these technologies can be effectively implemented in therapy and education.
ArtEZ students have the opportunity to apply their learning in real-world scenarios. One student's experience using Cosmo in clinical sessions is documented in a short video, demonstrating the practical application of this technology in therapeutic settings.

Lancashire Music Service

Their Accessible Instrument Library, featuring versatile technologies like Cosmo, is revolutionising inclusive music education across Lancashire.

Lancashire Music Service has developed an innovative Accessible Instrument Library as part of its music technology strategy. This award winning initiative is supporting music education in 31 SEND schools across Lancashire County. Working alongside specialists in music-making for SEND settings including Drake Music and Ben Sellers, they have created a comprehensive resource collection.
The library features Cosmo as a versatile technology, which has proven popular across multiple educational settings. Key attributes include:

- Versatility enables use for both music coordinators and non-music teachers
- Vibrant, adjustable colours supporting visual accessibility
- Intuitive design enabling broad educational applications

Currently utilising three Cosmo sets, Lancashire Music Service plans to expand their accessible instruments initiative to 82 secondary schools by September 2025, demonstrating significant commitment to inclusive music education.

Leicestershire Music Service

The Leicestershire Music Service's SEND Leaders effectively integrate Cosmo's musical activities through the Open Orchestra project, enhancing engagement and learning.

The Leicestershire Music Service's SEND Leaders utilise Cosmo's musical activities in SEND schools as part of an Open Orchestra project for students of various ages and needs. The Exploration and My Orchestra activities have proven particularly beneficial for students beginning their musical journey, offering instant engagement and intuitive interaction that demonstrates cause and effect and allows students to control the music.

Cosmo has been employed to teach turn-taking, musical direction, and following instructions. Its user-friendly interface and immediate engagement have made it appealing to non-specialist teachers without formal music training. Additionally, the Improvisation activity has been used to teach musical composition by matching colors to notes.

The size and brightness of the Dots make Cosmo accessible for students with visual impairments, while its touch-sensitive Bluetooth controllers and specialised iPad software improve access to music for students with limited physical mobility, cognitive, and sensory issues.

Corbets Tey School

Corbets Tey School utilises Cosmo to facilitate engaging group music-making lessons to enhance students' listening and collaboration skills.

Corbets Tey is a forward-looking SEN school in East London that has been using Cosmo to engage students in group music-making activities. Their music teachers use Cosmo to create an engaging and collaborative music lesson for students with moderate learning difficulties. By following a structured lesson plan, the teachers guide their students through a series of activities where they take turns playing Dots, conducting the class orchestra, and listening to each other. The lessons improve students' listening and collaboration skills while boosting their self-confidence.

Scan to contact

https://linktr.ee/cosmo_filisia