Course 1: Using Music to Teach Maths

Music plays a crucial role in our lives, influencing neurological, psychological, and physical functions, and impacting learning, language processing, emotional expression, memory, and physiological responses (Sacks, 2007). Recent research emphasizes a strong correlation between music, academic performance, and character traits linked to improved test scores (Mauk 2009). Beyond its cognitive benefits, music fosters unexpected bonds among children, breaking down communication barriers within diverse groups. It has the remarkable ability to infuse joy into a classroom, creating an atmosphere conducive to learning. Music cultivates essential listening skills, a foundational pillar of the learning process. In light of these insights, there is a compelling case for integrating music consistently into teaching various subjects, reaping the multiple benefits it offers. The profound impact of music on cognitive functions extends to its substantial benefits in aiding children's learning of mathematics. Music activities play a crucial role in enhancing mathematical comprehension by engaging students in a dynamic, creative, and enjoyable learning environment. This integration not only promotes a deeper understanding of mathematical concepts but also contributes to the development of essential cognitive skills, creating a holistic and enriching educational experience for children. Teachers, regardless of musical background, can harness the power of music to not only transform the classroom atmosphere but also to facilitate a more effective and enjoyable approach to teaching mathematics.

Learning Objectives

This course will offer fundamental ideas and practical examples for integrating music into the mathematics curriculum. It will present hands-on activities, incorporating music and movement to enhance students' mathematical skills in a fun, creative, innovative, and inclusive manner. Utilising materials such as body percussion, singing, and common school musical instruments, the course emphasises collaboration while serving as a springboard for teachers' creativity. In addition, the course aims to inspire a multitude of applications for integrating music into daily mathematical teaching. It provides solutions to potential obstacles and encourages teachers to create their own examples, ultimately enhancing their teaching practices to alleviate students' math phobia. Recognizing math as a creative subject, the project seeks to make learning math enjoyable and interactive, fostering positive academic outcomes.

Contributors

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Maria Dimosthenous holds a Master in Musicology studies from Aristotle University of Thessaloniki, a master's degree in leadership and School Management and a Diploma in piano performance. She is a certified early years music trainer in Kodaly philosophy by the British Kodaly Association and a certified adult trainer by HRDA (Human Resource Development Authority), Cyprus.

She is the founder of AMusEd (Amalgamate Music Education) in Cyprus an organization that provides music education from early years to adults, teachers' training courses and develops educational material funded either privately or through Erasmus+ projects. Maria has a great

experience as music educator in schools (pre-primary, primary and high school) as well as a private tutor for kids with special needs.

Polyxeni Constantinou
Polyxeni Constantinou holds a Bachelor of Arts in Music from European University Cyprus, a Master's in Music Psychology in Education, Performance, and Wellbeing from Sheffield University (Mmus), and both a Piano and Theory Diploma with distinction from the Hellenic Conservatory. With a background as an early childhood educator and experience as a piano and theory tutor, she has actively participated in seminars focused on music education and music therapy.

The course is presented in two learning units:

Introduction:
Learning Unit 1: Addition and Subtraction
Learning Objectives

- ✓ To provide musical practices and activities that can be utilised in the classroom to help students understand addition and subtraction.
- ✓ To inspire teachers with new ideas to use music activities in their teaching.

Learning Unit content

1. Introduction
2. Addition
3. Subtraction

Learning Unit 2: Multiplication, Division and Geometry

Learning Objectives

- ✓ To provide musical practices and activities that can be utilised in the classroom to help students understand multiplication and division.
- ✓ To inspire teachers with new ideas to use music activities in their teaching.

Learning Unit content

1. Introduction
2. Multiplication
3. Division
4. Geometry