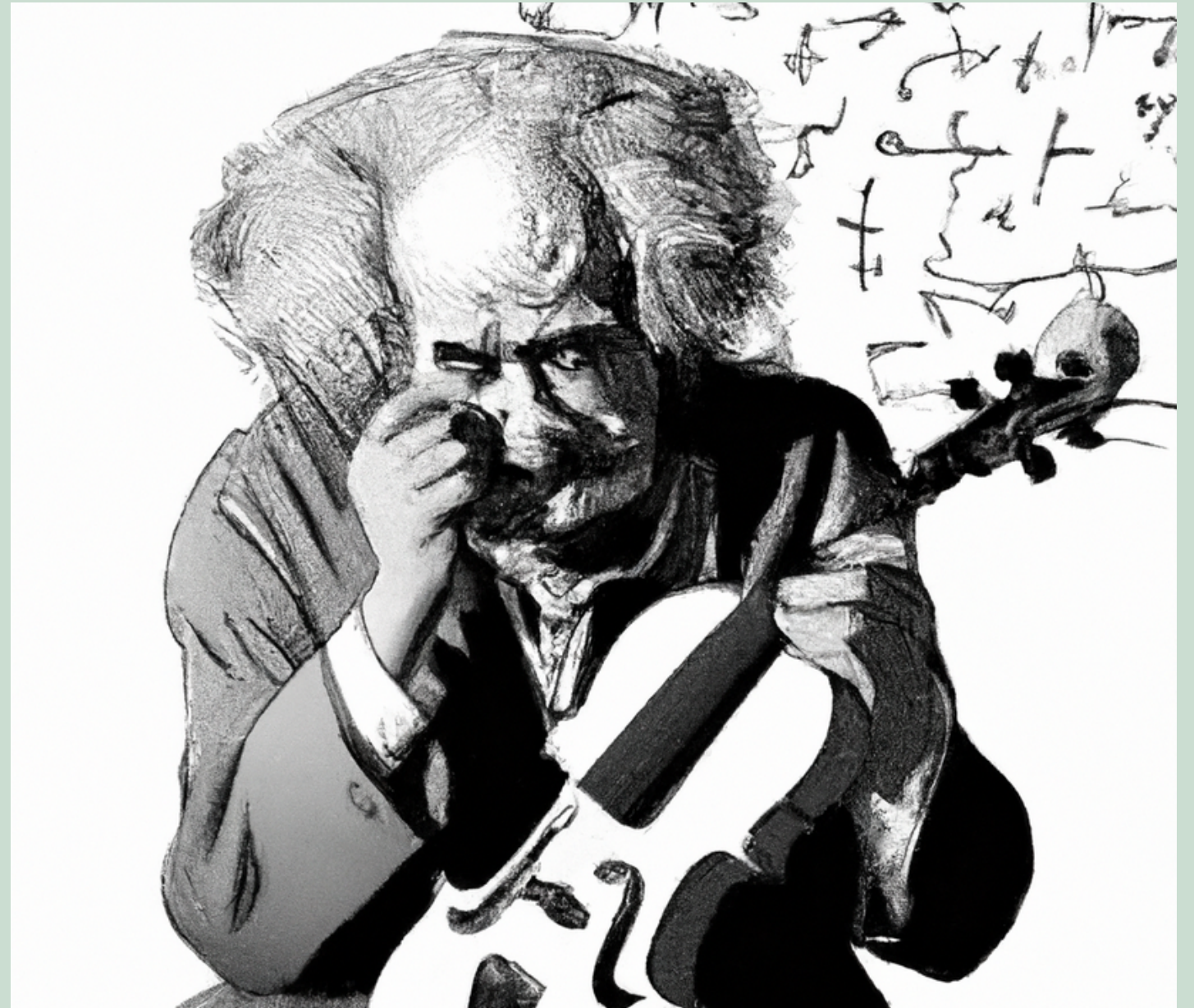


REAL CONNECTION BETWEEN MATH AND MUSIC



The connection between music and mathematics is so strong that musical experiences and learning enhance mathematical performance.
(Luiz, 2007)

https://www.researchgate.net/publication/266318346_The_learning_of_music_as_a_means_to_improve_mathematical_skills



ai generated photo: <https://labs.openai.com>

REAL CONNECTION BETWEEN MATH AND MUSIC



Music can be used to increase
mathematical knowledge, academic
performance and intelligence in
general.
(Kelstrom, 1998)

<https://doi.org/10.1177/0192636598082597>



ai generated photo: <https://labs.openai.com>

CONCENTRATION AND CREATIVITY



MAKING MUSIC IS A CREATIVE PROCESS
THAT GIVES JOY IN THE MAKING,
COMBINE MAKING MUSIC WITH SOLVING
MATHEMATICAL PROBLEMS AND THIS
CREATIVITY AND JOY WILL RUB OFF ON
THE PROCESS OF LEARNING MATH.
(HAMILTON, 2018)

[HTTPS://IEEEEXPLORE.IEEE.ORG/DOCUMENT/8615262](https://ieeexplore.ieee.org/document/8615262)

CONCENTRATION AND CREATIVITY



ART CAN AWAKEN ATTENTION IN THOSE
THAT EXPERIENCE IT. MUSIC, RHYTHM
AND CREATIVE MOVEMENT CAN HELP
STUDENTS WITH THEIR CONCENTRATION
ON CURRICULAR SUBJECTS.
(MOERMAN, 2018)

[HTTP://SH.DIVA-PORTAL.ORG/SMASH/RECORD.JSF?PID=DIVA2%3A1244292&DSID=-1240](http://sh.diva-portal.org/smash/record.jsf?pid=DIVA2%3A1244292&dsid=-1240)

PRESENT ABSTRACT IDEAS IN CONCRETE FORMS



Dance can give a visual representation of more abstract subjects in math that are difficult to explain in plain words.
(Rosenfeld, 2011)



https://www.academia.edu/4787544/Jump_Patterns_Percussive_Dance_and_the_Path_to_Math

ai generated photo: <https://labs.openai.com>

PRESENT ABSTRACT IDEAS IN CONCRETE FORMS



The integration of the arts into teaching gives students more opportunities to make connections that lead to deeper understanding.
(Munroe, 2015)

<https://doi.org/10.1177/1048371315572878>



ai generated photo: <https://labs.openai.com>

VISUAL REPRESENTATION



WHEN USING THE SPACE OF THE CLASS
ROOM AND THE NUMBERS WE HAVE
AROUND US WE CAN GIVE THE
CHILDREN A NEW LEVEL OF THE
UNDERSTANDING OF MATHEMATICAL
CONCEPTS
(MOERMAN, 2016)

[HTTP://ARCHIVE.BRIDGESMATHART.ORG/2016/BRIDGES2016-269.HTML](http://archive.bridgesmathart.org/2016/bridges2016-269.html)



VISUAL REPRESENTATION



MUSIC GIVES A RANGE OF WAYS TO
UNDERSTAND MATHEMATICS AS
PATTERN BUILDING, COMPARING AND
ORDERING, DESCRIBING WHAT ONE
HEARS AND SEES AND SOLVE
PROBLEMS, MAKE MUSIC!
(JOHNSON & EDELSON, 2003)

[HTTPS://WWW.PROQUEST.COM/DOCVIEW/214139035](https://www.proquest.com/docview/214139035)



TEAM BUILDING/CLASS MANAGEMENT/INSPIRATION



The use of body percussion and eurythmic games helps to improve the integration level of all students in the whole class.
(Lundberg, 2014)

<https://lup.lub.lu.se/luur/download?func=downloadFile&recordId=4986216&fileId=4986219>



PHOTO: "ANIMAL FARM" BY ONLY_ALIVE IS LICENSED UNDER CC BY-NC-ND 2.0.

TEAM BUILDING/CLASS MANAGEMENT/INSPIRATION



ai generated photo: <https://labs.openai.com>



Some teachers tend to focus on the ability to understand mathematical concepts and neglect negative mathematics dispositions. Incorporating art into the mathematics classroom are shown to improve mathematical disposition and also performance in math.
(An et al., 2014)

<https://www.cimt.org.uk/journal/an.pdf>

OVERCOME LANGUAGE OBSTACLES/UNIVERSAL COMMUNICATION



Photo: "thank you note for every language" by woodleywonderworks is licensed under CC BY 2.0.

Students learn to communicate about dance
through math and math through dance.

(Rosenfeld, 2011)



Photo: "communication" by flavijus is licensed under CC BY-NC-ND 2.0.

Dance is speechless but can give an extra dimension to the communication within a classroom. In a multi-linguistic class this can help ease the language-obstacles.

(Moerman, 2016)

OVERBRIDGE ANXIETY/ MATHPHOBIA



To work with dance and movements in the math class room can sometimes make the kids forget that they are learning math, and hence their phobia of math disappears. The same can be true for kids with a personality that likes math more than dancing and moving, the math makes it easier for them to join in on the dancing.

(Rosenfeld, 2011)



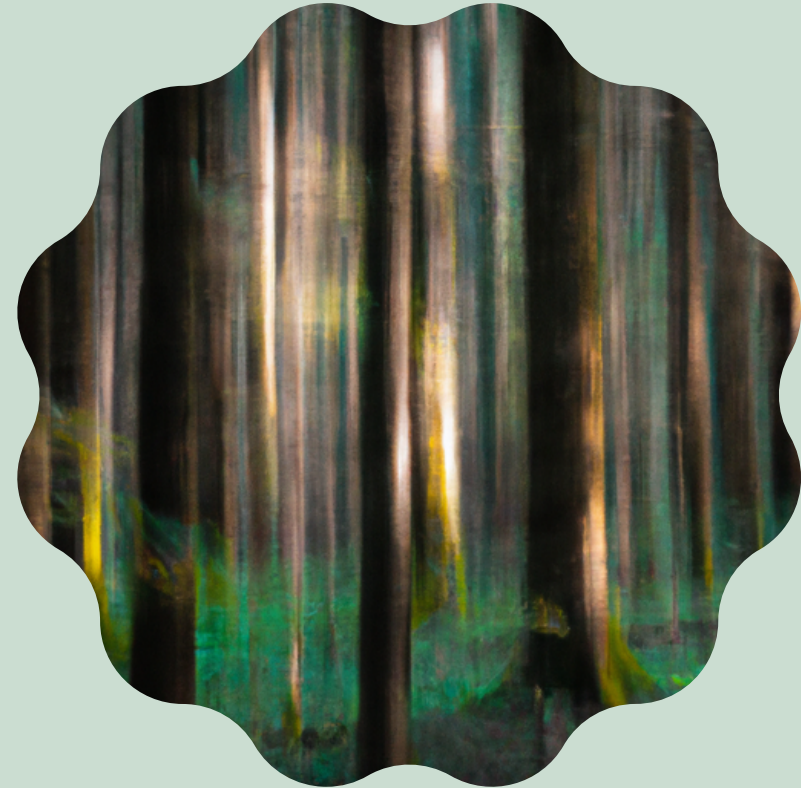
ai generated photo: <https://labs.openai.com>

OVERBRIDGE ANXIETY/ MATHPHOBIA



Music, wrote the great 17th-century
German mathematician Gottfried Leibniz,
"is the sensation of counting without
being aware you were counting."
(du Sautoy, 2011)

<https://www.theguardian.com/music/2011/jun/27/music-mathematics-fibonacci>



ai generated photo: <https://labs.openai.com>

MEMORISATION



ai generated photo: <https://labs.openai.com>



IT IS SHOWN THAT STUDENTS REMEMBER
MORE THOROUGHLY WHAT THEY LEARN IF
THEY GESTURE WHILE THEY ARE LEARNING.
(COOK ET AL., 2008)

[HTTPS://WWW.SCIENCEDIRECT.COM/SCIENCE/ARTICLE/ABS/PII/S001002770700114X?
CASA_TOKEN=AY335IOLFC4AAAAA:CALSDIDX_1Ri8HGD8NBJHQDB3UGThOKQxxK8SD
UqYG3-QF8P_2ky_YTVLMbBRD5SFSMPYUIPS4PV](https://www.sciencedirect.com/science/article/abs/pii/S001002770700114X?casa_token=AY335IOLFC4AAAAA:CALSDIDX_1Ri8HGD8NBJHQDB3UGThOKQxxK8SDUqYG3-QF8P_2ky_YTVLMbBRD5SFSMPYUIPS4PV)

MOTIVATING, ENGAGING AND REWARDING



'Music can activate the same reward center in your brain as the other things you enjoy. Rewarding yourself with your favourite music can improve the motivation you need to learn new information'.

(Gold et al., 2019)

<https://doi.org/10.1073/pnas.1809855116>



PHOTO: "FRESH" BY SCOTT ROBINSON. CHANGES MADE, [HTTPS://CREATIVECOMMONS.ORG/LICENSES/BY/2.0/](https://creativecommons.org/licenses/by/2.0/)

MOTIVATING, ENGAGING AND REWARDING



Music creation is the only one that
activates most parts of the brain as
opposed to any other activity.
(Scripp & Gilbert, 2016)

<https://doi.org/10.1080/10632913.2016.1211923>



PHOTO: "DESERT HEIGHTS" BY SCOTT ROBINSON. CHANGES MADE, [HTTPS://CREATIVECOMMONS.ORG/LICENSES/BY/2.0/](https://creativecommons.org/licenses/by/2.0/)