

Math in Musical Melodies

Presenters:

Rozie Curtis; Theatre Under The Stars Faculty Member

Kiana Day; Theatre Under The Stars Faculty Member

Patrick Thornton; Algebra Teacher at South Houston High School

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Theatre Under The Stars

Math in Musical Melodies!

Theatre Under The Stars (TUTS) is dedicated to helping Houston and the Greater Houston area bring quality enriching programming to schools. TUTS offers an extensive curriculum for schools, community organizations, and medical facilities. These programs make musical theatre accessible to children of all abilities.

As an arts educator, TUTS believes in the power of the arts to help educate and bring curriculum to life for the students. Below you will read an interactive approach that was created to help students gain a better understanding and appreciation of Math and its various elements. This program was also designed to assist teachers to bring a new innovative approach to teaching a sometimes challenging subject such as MATH!

Music provides specific tools for math teachers, and it doesn't have to be intimidating for those who don't have a musical background. With step-by-step guidance from TUTS Musical Director Kiana Day Holden, participants will learn to turn math equations into jingles that are impossible to forget, create an opera that explains integers, or involve students in a ballet that will develop spatial awareness. This workshop offers something for all musical tastes!

SUBJECT AREAS: Primary Education, Secondary Education, Math, Music, Theatre

PRESENTERS BIOS

Rozie Curtis: Theatre Under The Stars

She was the manager of education at Theatre Under The Stars for 10 years. In this position, she brought Theatre Under The Stars Classes in the Community programming to many school schools in the Houston and Greater Houston Area, reaching thousands of children every year. She created TEKS based curriculum for all of her outreach programming. She taught top-rated In Service Workshops for teachers all over the Houston and Greater Houston area with the focus on creative classroom techniques based on TEKS CEDFA guidelines. Mrs. Curtis served on the TEA Fine Arts review committee for High School Theatre and helped to shape the new TEKS guidelines for Texas teachers which go into effect this year. She is a Magna Cum Laude graduate of St. Edward's Univ. with a degree in Theatre Arts. After college, she went on to professional stage work. Stage credits include numerous productions in children, youth, and adult theatre across the country. She has directed, choreographed and acted in over 50 theatrical productions from musicals to straight plays. She is also an award-winning filmmaker and constantly sought after writer, choreographer, director and acting coach and teaches workshops in all of the previous mentioned areas.

Kiana Day was the Program Manager for Houston Grand Opera's Home and Place, a program funded by a \$250,000 grant received from ArtPlace to promote "place building through art", and has since facilitated education and community initiatives for HGO and Theatre Under the Stars (TUTS). She earned Bachelor and Master of Music Education degrees from Jackson State University and is currently entering the dissertation phase of a DMA in Music Education degree from University of Houston where her major area of research is advocacy for music education in multicultural and urban environments. Along with teaching music education courses at University of Houston, Kiana has been a co-researcher/presenter for papers presented at the TMEA Conference in 2009, with "A Content Analysis of Introductory Courses in Music Education at NASM-Accredited Colleges and Universities", published in the Fall 2011 Bulletin for the Council of Research in Music Education. She also co-wrote the spotlight article in Partners for Livable Communities' "Stories for Change: Leadership Examples of Expanding the Arts to New Audiences" in 2012, funded by MetLife Foundation.

Patrick Thornton: Currently a Math Teacher at South Houston High School, his focus is Algebra 1 and Geometry. He is certified to teach in Mathematics Grades 8-12. This Fall, he will teach 9th Grade Algebra 1 at South Houston High School in Pasadena ISD. Patrick has taught children of all ages in after school programs and the federally funded educational support program Upward Bound for Fort Bend, Houston, and San Marcos school districts, where he was tasked to teach and tutor a variety of subjects, including Theater, English, Reading, Physical Education, and (of course) Math. After graduating from the Honors Program at Texas State University in San Marcos with a degree in Exercise and Sports Science, he spent 5 years as a personal trainer in high profile locations such as 24 Hour Fitness and Life Time Fitness. He hopes to use his fitness experience (push-ups for wrong answers?) to teach students to keep pushing themselves further. Patrick has a love and appreciation for the Arts. Though his background in mathematics/science, he has been an arts aficionado for a long time. He is a working actor, playwright and director. Patrick has found that incorporating the arts into teaching difficult lessons has helped the children grasp more ambiguous concepts.

MATH IN MUSICAL MELODIES!

The Big Takeaway:

- The combination of music and creativity can be such a useful resource in teaching concepts for any subject, at any grade level
- It helps students relate curricular concepts to real life

Activity and Time frame:

- Round ‘Em Up – 1 min.
- Discuss the Concept – 5 min.
- “Cart Your Art” – 2 min.
- “Use it with Music” – 8-10 min.
- Presentation – 5-15 min. (depending upon presentation options)

This entire activity can be done in **30 minutes or less**, leaving more time for instruction!

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5 - 7 minutes

- Lead in with quadratic formula song ($X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ - to the tune of “Pop Goes the Weasel”)
 - Talk about how the combination of music and creativity can be such a useful resource in teaching concepts for any subject
 - Seems to be an elementary style of teaching (“cutesy”)
 - There’s a LOT that we could learn from these elementary teachers in terms of creativity in the classroom
 - Can also be applied at secondary levels as well
- Important questions:
 - **Why is creativity in curricular instruction important?**
 - **What can students do to relate concepts to real life?**
- Find ways for students to create a product
- Give students ways to show where this is evident in their world
- Ask question:

What are some concepts that you creatively teach in your classroom?

20 minutes (*I’ll prepare to do an abbreviated run of the activity to allow time for any questions at the end*)

Activity and Time frame:

- Round ‘Em Up – 1 min.
 - *Put teachers in 5 groups of 4 (allow them arrange themselves) – give them group names (write these down)*
- Discuss the Concept – 5 min.
 - *In your groups, decide on a math concept or problem that you want your class to solve (examples: integers, order of operations, polynomials)*
 - *Be sure to review it so that you all have the correct answer and order of operations*
- “Cart Your Art” – 2 min.
 - *One representative per group pulls a sheet of paper from the bowl (don’t open paper until told to do so!)*

- “Use it with Music” – 8-10 min.
 - **Directions:** *on each slip of paper, there is a specific musical genre. The group’s mission is to develop a way to teach this concept in the chosen musical genre (it’s terribly difficult to get this wrong)*
 - **Make sure that everyone in the group has learned the song**
- Presentation – 5-15 min. (depending upon presentation options)
 - **Option 1 (quickest):**
 - *Have each group perform their song for the class*
 - **To thine own class be true:** *if you have a group of introverts with a few brave souls in each group, the teacher can decide to allow “representatives” from the group to present. However, if this is an active class (and especially if student participation is an assessment tool), make the requirement that each student must participate in some way*
 - **Option 2 (best at providing student understanding of multiple concepts or terminology):**
 - *Have students in each group count off 1-4*
 - *All 1’s move to 1st table, 2’s to 2nd table.....*
 - **Directions:** *students teach the song/concept learned in original group to your new group (5-7 minutes)*
 - **Presentation:**
 - *Go through each song/concept as an entire class*