Week 6: Feb 17-23	Mathematics & dance, movement, drama and film	Reflections: Feb 21, 8 PM Responses: Feb 23, midnight

EDCP 553-26 cohort Week 6, Feb 17-23, 2026

Week 6: Mathematics & dance, movement, drama and film

How can dance and movement relate to the subtleties and abstractions of mathematical ideas? We will watch some extra video performances and films this week in exploring these very physical ways of embodying mathematics.

Introduction: A very brief written introduction this week:

Mathematics deals in abstract forms that are not always easy to realize in the physical world. How could we create an infinitely long line with no width in the physical world -- much less with our own bodies? How can we have precise angles in movement and dance? How can we represent a 'point that has no part' (just a location, that doesn't take up any space), or a perfectly round circle, or a fractal that gets microscopically small? How can we represent an irrational number like pi, that has an infinite number of decimal points, or things that are extremely large or small, through body movement and dance?

In fact, we can't actually make these abstract, conceptual shapes that involve infinity and infinitesimals with our bodies -- or with a pen and paper, or a chalk line on a chalkboard, or with pixels on a computer screen! No physical thing (including those that are electronic) is infinitely precise, infinitely large or infinitely small.

But we do have imaginations, and that is actually where these mathematical concepts come from!

Thinking about the history of mathematics, these mathematical ideas came from human beings like us, dealing with an 'imperfect' and finite world, with bodies that only bend and move in certain ways and materials that are fallible and imprecise, and then imagining and exploring infinities, patterns and relationships. Given that history of mathematics arising from people's imaginative engagement with the real world, we can also consider representing math with learners in ways that involve the real world! And nothing is as engaging and interesting as movement and action that involves our own bodies, working individually or, preferably, together: dance, movement, sport, theatre, music,....

In a future week we will consider the affordances of working in embodied ways at a variety of scales and with many kinds of materials. But for now, let's get started considering the very idea of teaching and learning mathematics through dance and movement! You might want to clear some space in your classroom, or go to the drama room or gym, or get outdoors on the playground with some sidewalk chalk and a few other props to fully engage in mathematics via dance.

Viewing: (1) Karl Schaffer & Mr. Stern TedX talk (2012) (10:18),

(2) Karl Shaffer Math Buffet: Squishahedron and Tetrahedron (2021, Julia Robinson Math Festival) (2:32)

(3) Dances with math: Interviews with Karl Shaffer, Saki and Erik Stern (2021, Julia Robinson Math Festival) (12:51)

(4) Jump into Math! Malke Rosenfeld TedX talk (2013) (12:24)

(5) Keith Terry : Rhythm of Math -- Teaching Mathematics with the Body teaser (2015) (1:23)

(6) Keith Terry Rhythm of Math: Polyrhythms -- 3 against 4 (2015) (2:34)

(7) The geometry of longsword dance locks (Steel Phoenix) (2013) (4:47)

(8) George Hart: Mathematical Impressions: Longsword Dancing (2014) (5:46)

Optional viewing -- a bit of math theatre (two plays about women in math):
(a) Gerofsky, Witches of Agnesi musical math history play (2019/2021) *Note: This link takes you to the National Math Festival (US) panel discussion and pre-recorded play. If you want to watch just the play, here is the link to it.* (55:00)

(b) Moira Chas, The fictional letters of Alicia Boole (2021). (24:10)

Activity: *(Note: Malke Rosenfeld's website has just disappeared and been replaced by some ecommerce site! Here are some different and definitely worthwhile activities for you to try out and think about!)*

Here are some math and movement activities from Karl Schaffer and company:

(1) Making Stars (with Scott Kim) (1:38)
(2) Mathematical Hellos (3:13)
(3) Adrienne Clancy on dancing rotations (including the rotation of the earth on its 23.5º tilted axis..) (15:15)
(4) MIranda Abbott's In Constant Motion (5:02) (Miranda is a Canadian professional dancer who is now a Grade 2 teacher in Costa Rica, and teaches mathematics through dance…)

Take a look at these -- choose one to try, and then try it out by yourself, or preferably with others (your students, friends, members of your household). How could you adapt this lesson idea to work with your students and your lessons on this or a related/ similar topic in your math curriculum?

Readings:

a) sarah-marie belcastro & Karl Shaffer (2011). Dancing mathematics and the mathematics of dance.

b) Julianna Campbell and Christine Von Renesse (2019) Learning to love math through explorations of maypole patterns.

c) Vogelstein, Brady and Hall (2019) Reenacting mathematical concepts in large-scale dance performance