

Session 3-41

# Math Moves

Using Dance to Explore Multi-Step Linear  
Equations

[bit.ly/1Hk4mq0](https://bit.ly/1Hk4mq0)

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THE HAMLIN SCHOOL  
EXCELLENCE IN EDUCATION FOR GIRLS

# Introductions

Our journey in arriving at today

Who you are:

- ❑ Name
- ❑ School
- ❑ What you teach
- ❑ Comfort level with STEAM lessons and projects

# Outline of the Lesson

Day 1 of 2

## *Dance Teacher Led*

- 5 min Students leave materials in cubbies, go to Movement Lab for class, and listen to brief intro about what we're doing and the day's expectations from math teacher
- 8 min Jill teaches a warm up, playing with a pattern of movement and the order of the movements: arms high high, low low; walk forward 4 steps, walk backward 4 steps; arms to side 2x each low, middle, high; walk in small circle 4 steps (Music - "Kong" by Bonobo)
- 12 min Further exploration of sequences and order: Reverso poems - divide class into small groups and each create a phrase using a "reverso poem" by poet Marilyn Singer (from her book *Mirror Mirror*); each group quickly shares
- 10 min Creative warm up as a whole class: Jill gives the whole class a list of 6 words (gather, expand, grow, divide, combine, shrink); students help generate movement and then we practice the phrase (Music - "Kiara" by Bonobo)

# Outline of the Lesson

Day 1 of 2

## *Math Teacher Led*

- 2 min Math teacher divides the class into groups (3-4 people)
- 3 min Groups create movement for each operation.
- 2 min Revision Step: Students should be mindful of definitions like subtraction = addition of a negative and division = multiplication of a reciprocal and what that means for the movements they create.
- 3 min Groups share their operation movements by working through PEMDAS with the whole class to conclude the day.

# Outline of the Lesson

Day 2 of 2

## *Math Teacher Led*

5-10 min Do Now: Students should get back into groups and review their movements of each operation

20-25 min Create and Share Mathematical Expressions Through Movement

*-start simple and add complexity as the section can handle it; modify as appropriate*

-create/share a **1-operation expression** as a dance phrase; work through it forwards and backwards (this will appear trivial but should help students make connections during the wrap-up)

-create/share a **2-operation expression** as a dance phrase; work through it forwards and backwards (e.g., multiplication  $\rightarrow$  addition, then subtraction  $\rightarrow$  division)

-create/share a **3-operation expression** as a dance phrase

-create/share an **expression that uses parentheses** as a dance phrase

-create/share a **student-chosen multi-operation expression** as a dance phrase

# Outline of the Lesson

Day 2 of 2

## *Math Teacher Led*

15 min Wrap-Up: Class discussion on how this connects to solving equations (students can write down some notes to help themselves with their HW)

### *Suggestions:*

- Who can briefly summarize what we've done together for the last 2 classes?
- What math concepts have we used?
- What math ideas did we use differently from how we've used them in the past? Why do you think we did that?
- How does this relate to the way we solve linear equations?

# Warm-Up Dance

Let's get ready to dance together and think about movement and sequence and order.

# Reverso Poems

## In Reverse

Who  
says  
it's true —  
down  
is  
the only view?  
If you believe that,  
this poem  
will challenge  
you.  
Up  
is  
something new.

Something new  
is  
up.  
You  
will challenge  
this poem  
if you believe that  
the only view  
is  
down.  
It's true.  
Says  
who?



# Brainstorming Movements for Operations

Let's think of words and movements that evoke the notions of addition, subtraction, multiplication, and division.

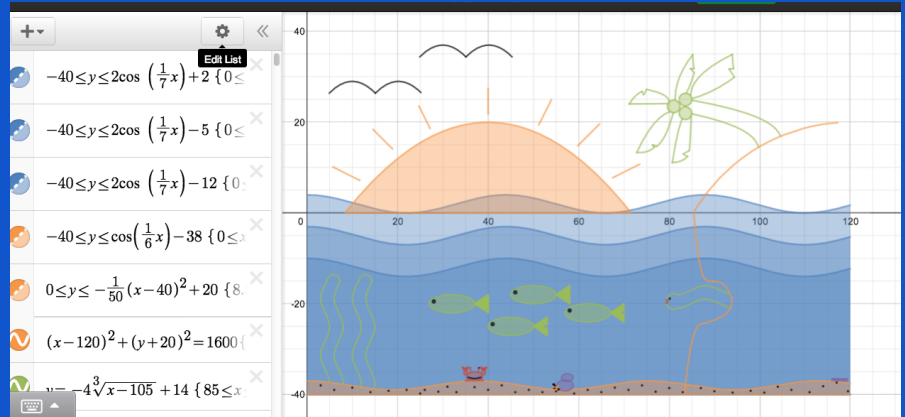
**Create Movements for Operations**

**Create Dance**

**Phrases/Mathematical Expressions**

# Reflections & Feedback

# STEAM



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