GRADE K

MATH • DANCE

Math in Motion

Essential Questions

- How can the body be used as a tool?
- How do dancers get ideas?

VOCABULARY

represent
movement
express
addition
subtraction

Materials List

- Open floor space

Pacing 1-2 SESSIONS

Assessment

SUMMATIVE Rubric

Elements of DANCE

- Movement
- Body
- Space

CONTENT Standard

CCSS.MATH.CONTENT.K.OA.A.1

Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

ARTS Standard

DA:Cr2.1.Kb

Express an idea, feeling, or image, through ***improvised movement*** moving alone or with a partner.

Additional Standards Addressed:
DA:Pr5.1.Kb
DA:Cn11.1.Ka

21st Century Skills

- Creative thinking
- Communication
- Collaborate
- Social Skills

Lesson Objective

Students will be able to demonstrate their understanding of addition and subtraction through original movement which demonstrates the principles.

Lesson Overview

Movement in the classroom is a natural way to increase blood and oxygen flow, which enhances and promotes cognitive development. It also make learned concepts stay with students more effectively. Using this knowledge, and realizing that the concepts of addition and subtraction will lay the groundwork for many years to come in the area of math, this lesson will ask students to physicalize the definitions of and demonstrate their understanding of the concepts.

Artful Thinking Routine

Listening: Ten Times Two

Play the first segment of "Happy Music - Music for Positive Energy" (about 3:40 of the whole thing).

- Listen quietly. Let your ears wander and take in as much as possible.
- Share 10 words or phrases about any aspect of what you hear.
- Repeat Steps 1 & 2: Listen again and try to add 10 more words or phrases to your list.

STEP 1 Introduction

It is important for students to realize and learn that they carry tools with them at all times, that are sometimes relied upon very heavily.

Teach them about their personal toolbox, complete with 5 tools: their voice, body, imagination, concentration and cooperation. Together, create a chant and movements that go with this introduction. (See Teacher Tip).

Let students know which tools they will be using today: their body, imagination, and cooperation.

STEP 2 Body as a Tool

Ask students to use their body - not just their face - to show different emotions:

- *happy, sad, angry*

Inevitably, you will have some students that use their whole body and some that use only their face. Use one of each as a demonstration, and ask the rest of the class to discuss the differences between the two.

Through discussions about using your entire body, be sure students are thinking about:

- Space (are they using high, middle and low areas of space, what directions are they using?)
- Energy (what weight are they conveying, what are their movements like - fluid, smooth, loose, sharp, etc?)

To get students thinking this way, engage them in quick movements around the classroom as certain animals, thinking about movement styles, or inanimate objects, like water, a falling book, etc.

It would also be beneficial to discuss locomotor (movements that travel) and non-locomotor (movements that happen while you remain stationary) actions.

Teacher to Teacher

Teacher Tip:

Be sure to read the detailed article and script for teaching your students about the Actor's Toolbox from Sean Layne, found on the Institute's website, linked here.

These tools are valuable to teach your students and use regularly in all areas of work. It will allow students to become more familiar with the tools they carry with them at all times.

Check for Understanding

Questions to Ask Students:

What do you notice is different about the way [student 1] and [student 2] express the emotion?

Which student teaches more about the emotion?

How can we use our whole body to represent something?

How can our body help to teach people about an idea?

When you are moving your body, how can you fill different parts of space?

Your notes:

STEP 3 Review

Before students begin experimenting with movement, you will want to review the concepts of addition and subtraction with them. Rather than simply practicing equations, use literature, movement and music to review and help solidify the meaning of what the terms do. Refer to the Literature Connections for suggested resources.

Be sure to use variations in vocabulary:

- *addition/plus/add/more*
- *subtraction/minus/subtract/less*

Teacher to Teacher

Teacher Tip:
As tempting as it may be, do not guide students towards showing movement in a certain way. Let them have complete creative control. You want their movement to have meaning to them, which is what will connect and solidify the meaning of addition and subtraction.

If a student is having difficulty, have them join another group or student that is on the right track.

STEP 4 Main Activity

Let students know that they are going to use their whole body to connect the thoughts in their brains with math in order to show what they know.

Task: Students will represent and express the meaning of both addition and subtraction through movement of their whole body. They can do this with a partner, a small group, or alone. The only rule is that someone watching their movements would be able to decide whether the movement goes with and is illustrating addition or subtraction.

Estimated Time: 20 minutes, plus performance time

CLOSURE

Allow each student, or person to perform their movement for the group, and then discuss which concept was being represented. Ask students how they knew, and what movements were used that helped them. What motions helped convey ideas and even images? When two very different movements are performed, compare them and ask students why they both worked, even though they were very different.

To wrap up, as a group, create one non-locomotor movement for addition and one for subtraction, that can be used for subtraction that you can use as a class to help each other when doing future math lessons.

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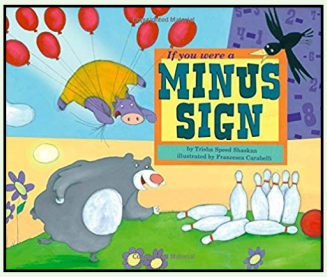
Literature Connections

Your other favorites:



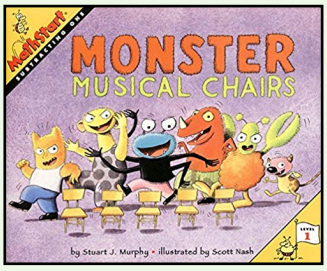
If You Were a Plus Sign

Trisha Sue Speed Shaskan

If You Were a Minus Sign

Trisha Sue Speed Shaskan

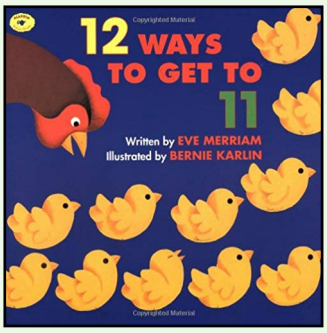
A perfect reinforcement of addition and subtraction, and their meanings. While math equations are shown, fun and colorful drawings help to accentuate the meanings of addition and subtraction. The books will naturally inspire students to be creative and develop their own stories, which will help to demonstrate understanding.



Monster Musical Chairs

Stuart Murphy

A simple musical introduction to subtraction with a simple funny storyline. The story invites movement while listening, and will encourage students to create their own scenario.



12 Ways to Get to 11

Eve Merriam

A colorful, silly and creative way to experiment with addition, and all the different ways to add numbers and get 11. It encourages flexible thinking as well as creativity in setting the stage for word problems.

TEACHER **ASSESSMENT**
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Math in Motion

Total Score: ____ / 8

Student: _____

CRITERIA	Distinguished (4 Points)	Excelled (3 Points)	Adequate (2 Points)	Basic (1 Point)
Student represents addition and subtraction	Student is able to represent both addition and subtraction in a very clear, insightful way which demonstrates a masterful understanding of both concepts.	Student is able to represent both addition and subtraction in a way which demonstrates a solid understanding of both concepts.	Student is able to represent either addition or subtraction in a way which demonstrates a basic understanding of both concepts.	Student is not able to represent addition or subtraction. Student may not understand the concept(s).
Student is able to express an idea through improvised movement moving alone or with a partner.	Student movement is original, creative, and shows higher order thinking skills, and clearly illustrates both mathematical concepts.	Student movement is original and clearly illustrates both mathematical concepts.	Student movement is confusing and shows limited understanding of or connection to the mathematical concepts.	Student movement is not original and does not connect to the mathematical concepts to represent meaning.
NOTES:				