artsNOW
Integrated learning solutions

MOVEMENT BY CHANCE: EXPLORING DANCE AND DATA PATTERNS
Grade Band: 4-5
Content Focus: Dance & Math



LEARNING DESCRIPTION

Students will explore the concept of chance dance, inspired by Merce Cunningham, while simultaneously developing data interpretation skills. Students will begin by learning about Cunningham's innovative approach, where movements are determined randomly using dice, coins, or digital tools. Working in small groups, they will create short dance sequences by assigning movements to numbers and rolling dice to determine how many times each movement will be performed. After performing their sequences, students will record data on movement frequency, patterns, and transitions. They will then analyze this data using charts or graphs, discussing trends and drawing conclusions about how randomness influences artistic composition. This lesson merges creative expression with mathematical thinking, encouraging students to see patterns in both dance and data.

LEARNING TARGETS

Essential Questions	"I Can" Statements
How can we use data interpretation to analyze and understand patterns created through chance dance?	I can create a chance dance sequence using randomization. I can analyze movement patterns by collecting and interpreting data.

GEORGIA STANDARDS

Curriculum Standards	Arts Standards
Grade 4: 4.PAR.3.2 Use input-output rules, tables, and charts to represent and describe patterns, find relationships, and solve problems. **Grade 5:** 5.MP Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals.	ESD.CR.1 Demonstrate an understanding of the choreographic process. ESD.CR.2 Demonstrate an understanding of dance as a form of communication. ESD.RE.1 Demonstrate critical and creative thinking in dance ESD.CN.1 Identify connections between dance and other areas of knowledge.

SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
Grade 4: 4.MDA.4 Create a line plot to display a data set (i.e., generated by measuring length to the nearest quarter-inch and eighth-inch) and interpret the line plot. **Grade 5:** 5.MDA.2 Create a line plot consisting of unit fractions and use operations on fractions to solve problems related to the line plot.	**Anchor Standard 1:** I can use movement exploration to discover and create artistic ideas and works. **Anchor Standard 2:** I can choreograph a dance. **Anchor Standard 3:** I can perform movements using the dance elements. **Anchor Standard 5:** I can describe, analyze, and evaluate a dance.

KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
• Data - Facts and statistics collected together for reference or analysis • Analyze - Examine methodically and in detail the constitution or structure of something, especially information, typically for purposes of explanation and interpretation • Interpret - Explain the meaning of information, words, or actions	• Merce Cunningham - American modern dancer and choreographer who developed new forms of abstract dance movement • Chance Dance - Chance dance is a choreography technique that uses chance to determine the order of a sequence of movements. It can also refer to a movement activity where participants create a dance using a random method like rolling dice.

• Charts - A sheet of information in the form of a table, graph, or diagram • Graphs - A diagram showing the relation between variable quantities, typically of two variables, each measured along one of a pair of axes at right angles • Fraction - A numerical quantity that is not a whole number	• Choreography - The art of designing and arranging sequences of movements, steps, and gestures to create a dance piece • Choreographer - The person who designs or creates a dance piece • Form - How a dance/choreography is structured (put together) • Level - One of the aspects of movement (there are three basic levels in dance: high, middle, and low)

MATERIALS

- Dice
- Movement cards with sample movements on them
- Merce cunningham video The Six Sides of Merce Cunningham
- Data chart
- Paper
- Pencil/pens/markers
- Music

INSTRUCTIONAL DESIGN

Opening/Activating Strategy

- Create a short dance with students using a movement list to select from.
    - Example movement list:
        - Jump
        - Hop
        - Clap
        - Turn
        - Slide
        - Change levels
        - Change directions
- Explain to the students that a piece of choreography is a collection of data.
- Using the data/choreography, create a chart/graph to represent all the steps in the dance.
- Explore various types of charts/graphs that can be used to display the data/choreography.

Work Session

- Watch video/discuss who Merce Cunningham is and how he used the concept of chance to create dances.
- Discuss how this concept applies to dancers and choreographers.
- Break class into groups.
- Give each group and set of movement cards (each group's cards should be the same) and one die.
- Tell the students to randomly select a card then roll the die to indicate the number of times that movement will be done.
- Continue until they have used all the cards.

- Have the students create a graph/chart (ex. tally chart. bar graph, line plot) to represent all the data in their choreography.
- Share each group's choreography with the whole class.

Closing/Reflection

- Facilitate a discussion around the following questions:
  - How was each group's dance different even though each group had the same data to start with?
  - How did chance impact the outcome?

ASSESSMENTS

Formative

- The teacher will assess student learning throughout the lesson by observing students' ability to use various movements in dance and their ability to use chance to create a unique piece of choreography.

Summative

- Students' data chart they create about their choreography
- Create a list of questions to ask about the students about the choreography/data–Example questions:
  - How many total movements were in your dance?
  - Which movement did you do the most/least in your dance?
  - Compare all data charts
  - Which group's dance had the most jumps?
  - Which group had the most dance moves in their dance?

DIFFERENTIATION

Accelerated: Have the students collect the data from all groups' choreography and create various types of charts/graphs representing all the data or comparing the data of different groups.

Remedial: Give the students a chart/graph that is already created and have them create choreography from the data.

ADDITIONAL RESOURCES

This integrated lesson provides differentiated ideas and activities for educators that are aligned to a sampling of standards. Standards referenced at the time of publishing may differ based on each state's adoption of new standards.

Ideas contributed by: Melissa Dittmar-Joy

Revised and copyright: May 2025 @ ArtsNOW