Data Dance

7th grade math and dance

CORE SUBJECT AREA
Math

ART FORM + ELEMENTS
Dance
Time

DURATION
3-4 (30-44) minute sessions/ class periods

OBJECTIVES
TSW organize data into stem and leaf plot; find mean, median, mode, outlier; and range of data.

TSW identify variabilities between two data sets and make inferences about populations.

TSW perform in space and time to conduct a task.

MSCCR CREATIVE ARTS STANDARDS
DA:Cn10.1.7 Synthesize and relate knowledge and personal experiences to make art. Compare and contrast the movement characteristics or qualities found in a variety of dance genres. Discuss how the movement characteristics or qualities differ from one's own movement characteristics or qualities and how different perspectives are communicated.

MU:Pr6.1.7 Convey meaning through the presentation of artistic work.

MSCCR STANDARDS
7.SP.3 Draw informal comparative inferences about two populations. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities measuring the difference between the centers by expressing it as a multiple of a measure of variability.

7.SP.4 Draw informal comparative inferences about two populations. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

MATERIALS NEEDED
Stacking cups (Solo cups), stopwatches, timing mat, Chart paper/blackboard/overhead, calculators, Interactive Notebook template, glue, scissors, student notebook

VOCABULARY
Stem-and-Leaf Plot, Box and Whisker Plot, Variability, Population, Outlier, IQR (Interquartile Range), Minimum Value, Maximum Value, Mean, Median, Mode, Expressively, Interpretation, Movement, Characteristics

RECOMMENDED RESOURCES
https://www.youtube.com/watch?v=q_1GTVrYdts 'Stacking Cups World Record Video'

LESSON SEQUENCE
TTW show a video of the "Stacking Cup World Record". TTW explain for students that the activity they are about to perform is based off of speed and data.

TTW demonstrate for TS several cup-staking strategies and levels that TS will do in pairs (3cup stack, 6-cup stack, 10-cup stack).

TTW describe that each student will create his or her own data at the end of the lesson to use in his or her own Box and Whisker Plot. TS will need to be refreshed on Mean, Median, Mode and Range. To do that TT should rap

this song to the rhythm of “Hey Diddle, Diddle. Have TS form a beat on a hard surface. TTS rap the song slow by herself at first and then have TS join in. Hey diddle, diddle, the median’s in the middle. You add and divide for the mean “FOR THE MEAN”. The mode is the one that occurs the most and the Range is the difference in between ‘IN BETWEEN’ TTW distribute the Box and Whisker Plot Interactive Notebook activity to each student. TTW explain the vocabulary and scaffold TS through the Fill-in-the-Blank page of the Handout. TSW work in pairs to complete the remainder of the Interactive Handout (Label the graph, create their own plot, etc.). TTW need to facilitate student learning by monitoring groups’ handout to ensure mastery of plots. TSW work in the same pairs to do a 6-cup stack 3 times each. One partner will record times using a stopwatch, while the other stacks, and then they will switch. All data will be added to two classroom charts. One chart will be classroom-wide, will all student data on one chart (no names). A second chart will have each students’ name and will have a space for all 3 times. TT should designate one student in each pair to go to the board to record their data on the charts. Discussion will then take place about how to organize the classroom data. Students should respond to place the data in numerical order. Look at the chart with each students’ name and see if TS can identify any pattern of improvement is seen with each successive practice.

Discussion: TS will be guided by TT to a stem and leaf plot using the classroom-wide data, which will be modeled for TS. Instruct TS to use their notes from their Handout. TS will then create one leaf plot with the data they created in pairs. TS will then make inferences about the variability in their leaf plot and the leaf plot for the class-wide data. Closure: Discuss with TS about improvement over time with practice and organization of data.

EXTENDED LEARNING ACTIVITIES

TT could use the graphs to have TS make a projection for successive further attempts to teach prediction. Teach dot plots along with stem and leaf plots.

SOURCES

https://educationcloset.com/wp-content/uploads/2011/06/stackingstatistics.pdf edited by Jessica Jarman

Teachers-pay-Teachers ‘Hey Diddle, Diddle’ rap- unknown source

TIPS + FREQUENTLY ASKED QUESTIONS

TTW need to have chart paper or an Excel set up to record/place student data. To save time have the Interactive Notebook Activity cut out prior to lesson. If your classroom is not set up for Interactive Notebooks, the activity can be made into a booklet to keep in TS binder. To aid in TS mastery of the rap, have lyrics on a poster-board, or written on the board.