

# Graph-a-Dance

*Fifth Grade + Math*

## CORE SUBJECT AREA

Math

## ART FORM + ELEMENTS

Dance

Space

## MSCCR STANDARDS

CCSS.MATH.CONTENT.5.G.B.4. Classify two-dimensional figures in a hierarchy based on properties.

CCSS.MATH.CONTENT.5.G.A.1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

CCSS.MATH.CONTENT.5.G.A.2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

## MSCCR CREATIVE STANDARDS

DA:CR1.1.4.a. Build content for choreography using several stimuli (ex. music/sound, text, objects, images, notation, observed dance.

DA:Cr3.1.5.b. Record changes in a dance sequence through writing, symbols, or a form of media technology

DA:Pr5.1.5.c. Collaborate with peer ensemble members to repeat sequences, synchronize actions, and refine spatial relationships to improve performance quality.

## DURATION

1 Class period, 75 minutes

## OBJECTIVE

TSW classify two-dimensional figures in a hierarchy based on their properties.  
TSW graph points on a coordinate plane to choreograph a dance.  
TSW build content for choreography by observing a dance.  
TSW collaborate to integrate shapes, pathways, and space into a dance.

## MATERIALS NEEDED

Paper  
Pencils  
Properties of two-dimensional figures anchor chart  
Colored pencils (various colors)  
Graph Paper

## VOCABULARY

Angle  
Coordinate Plane  
Length  
Line Segment  
Plane  
Side  
Space  
Symmetry  
Two-dimensional figure

Width

## RECOMMENDED RESOURCES

Projector/document camera or Elmo

Graph paper printable found at

[http://www.mathaids.com/Graph Paper/Coordinate Plane Graph Paper/html](http://www.mathaids.com/Graph_Paper/Coordinate_Plane_Graph_Paper/html)

Lancers Quadrille dance video found at

<https://ket.pbslearningmedia.org/resource/civera.arts.dance.thelancers/the-civil-war-era-thelancers-quadrille/#.Wyrz6dKjIU>

## LESSON SEQUENCE

### Introduction

- TTW review the properties of two-dimensional figures with TS (line segments, width/length, side, at plane, angles)
  - TTW use an anchor chart to review these properties.
  - TTW display different two-dimensional shapes (trapezoid, square, etc.).
  - TTW guide the student in classifying these two-dimensional figures based on their properties.
- TTW play the video of the Lancer's Quadrille dance found at <https://ket.pbslearningmedia.org/resource/civera.arts.dance.thelancers/the-civil-war-era-thelancers-quadrille/#.Wyrz6dKjIU>
  - TTW explain to the students that the Lancer's Quadrille was a dance that was popular during the Civil War, and they will see many properties of two-dimensional figures in the dance.
- TSW observe the different properties of geometric figures in the dance.
  - TSW work in their groups for three minutes to write down the different ways the properties were present in the dance on paper.
  - TSW share their observations with their classmates in a whole group discussion.
  - TTW call the students' attention to the different square, line, and triangle patterns that appeared in the dance.
- TTW review that symmetry is when equal parts of a pattern or object face each other around an axis.
  - TT and the student will discuss how the dance contained symmetry.

### Transition

- TTW introduce the student to the dance element space. TTW explain that space is the area that dancers occupy with their bodies when dancing.
  - TTW explain that space in dance can be at an area such as a dance floor or a pathway or line that dancers move on while performing.
  - TT and the student will discuss how this element of dance relates to the properties of two-dimensional figures.
- TTW display or project a coordinate plane on the board.

- TTW explain to the TS that a coordinate plane could serve as a space to choreograph a dance like the one the Lancers performed with symmetry and two-dimensional properties.
- TT and the student will identify the 0, 0 point of the coordinate plane as the center point for the dance.
  - TT and the student will pretend 4 dancers are on the coordinate plane and will choreograph dance moves that the dancers could perform to create a symmetrical dance with lines, angles, and two-dimensional shapes.
  - TTW mark the dancers locations on the plane with a different colored dot for each dancer.
  - TTW mark the lines each dancer creates with their movements with the marker of the same color.
- TT and the student will identify the different angles, shapes, and lines created by their dance on the graph.
  - The teacher and the student will discuss what makes the dance symmetrical.

## Description

- TTW split the students into groups of 4.
  - TTW distribute graph paper and different various colored pencils to each group.
- TSW create a coordinate plane on their graph paper like the one on the board.
- The students will each choose a color to represent themselves as a dancer.
  - Following the steps the teacher modeled on the board on the board, TSW choreograph a dance on the coordinate plane similar to the Lancers Quadrille.
  - TSW use the colored pencils to choreograph each dancers' moves.
  - The students' dances should be symmetrical and contain the properties of two-dimensional figures.
  - The students should have between 10-15 different moves in their dances.
- TSW practice their dances in their small groups.
- TSW present their dances to the class in their small groups.
- TSW provide feedback on one another's dances.
  - The students will discuss what they like about the dances, how the dances displayed symmetry, what two-dimensional properties they saw in the dances, and things the dancers could do differently in their dance.

## EXTENDED LEARNING ACTIVITIES

This lesson could tie into an ELA narrative writing lesson.

- Have students write fictional diary accounts of attending a party in 1864. (Ex. What did you do there? Who did you meet and what did you talk about?)

## SOURCES

Original lesson found at

<https://www.pbslearningmedia.org/resource/5c8b17ce-1b194e43-a91c-02cbb6f79310/geometry-in-dance/?#.WyrYradKjiLU>

## TIPS + FREQUENTLY ASKED QUESTIONS



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Give the students time limits on choreographing and practicing their dances.

