

BRIDGET RILEY PROJECT
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TABLE OF CONTENTS:

1. Teacher Plan Overview – pages 1 – 3
2. Student Overview – page 4
3. Student Desmos Trial – page 5 - 6
4. Student Desmos Trial Solutions – page 7 - 8
5. Student Initial Sketches Critique – page 9
6. Student Bridget Riley Video (guiding questions as they watch) – page 11
7. Teacher YouTube Times and Important Points – page 12
8. Grading Rubric – page 12

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The Bridget Riley Power Point we have won't upload the notes at the bottom that tell you about the pictures, so if you would like that, please email us and we can try to send it to you directly.

Brigit Riley Project – Teacher Time Plan

This schedule is based on 45 minute long periods

Day 1

1. Introduce Brigit Riley & her art
 - living British Artist
 - Op art
 - focuses on movement, depth, play of light
 - while mathematical in nature - she does not think about math at all when creating
 - she has clear intent in her art - a goal she is trying to create - however, it may morph in the process
2. Discuss how we are going to critique each other's work and Riley's art
 - "warm" - what we like about the piece
 - "cool" - what we don't particularly like
 - "I wonder" - things we might change if we created the art

ex. I wonder what it would look like if she used blues instead of reds.
I wonder what would happen if she didn't overlap the circles.
3. Show the power point of her work and critique her work using the warm/cool/I wonder model.
4. Remind students to bring computer to class tomorrow (or to pick up one from the computer lab).
5. Homework: begin thinking about what they may want to create.

Day 2

1. Show the YouTube videos of Brigit (warning quality is poor because they are from the 60's).
2. Talk about what our project is going to entail.
 - Time frame
 - Hand out the packet, which includes:
 - a. Overview
 - b. Rough Draft Directions
 - c. Critique of Initial Sketches
 - d. From Grapher/Desmos to Photoshop
 - e. Rubric
3. If time permits, begin Grapher/Desmos Trials Worksheet.
4. Remind students to bring computer to class tomorrow (or to pick up one from the computer lab).
5. Homework: begin thinking about what they may want to create.

Day 3

1. Start with Grapher/Desmos Trial Worksheet
 - Try to get students to recreate the drawings using minimal equations in Grapher/Desmos.
2. When they finish with the trials, allow students to experiment with the program.
3. Remind students that there is no need to bring computer to class for Day 4.
4. Homework: Come to class prepared with 2 to 3 sketches of possible projects using the Rough Draft Sheet in their packet.

Day 4

1. Divide students into groups of three or more to critique each other's work.

- Remind students that they are to use the "warms" and "I wonder" but that we are going to leave off the "cools" at this juncture.
- One member of the group will be the scribe for the first artist. They will write down what the artist says and then what their group mates say on to the Critique Sheet.
- One artist will present one of their sketches. They will talk about their intent/vision behind the piece as well as the mathematics they think they may need.
- The group will get a chance to respond to the sketch using "warms" and "I wonders." The scribe will continue to write down what is said allowing the artist to listen.
- When the sheet is filled out (1 per sketch) for the first artist's sketch then the roles will rotate and a different student will present their sketch and a different scribe will fill out the sheet.
- The goal is for each artist to present at least two sketches to their groups before the end of the period. So it is best to cap it to five minutes per sketch. We do not recommend having one artist present all their sketches at once, in case time runs out.

Day 5

1. This is a working day. Students will begin to create in Grapher/Desmos, trying to make their sketch appear on the screen.
2. Before students begin it is important to cover some basics about how to save their work as well as how to export it to Photoshop.

GRAPHER

BORDER: needed for adding color in Photoshop.

Format -> Layout -> Margins -> 1 cm margin around the piece

GETTING RID OF LINES IN BACKGROUND: allows art to be uncluttered.

Format -> Axes & grids -> unclick cartesian

EXPORTING FILE: allows you to open the artwork in Photoshop in the best way.

File -> Export -> File Format -> EPS (seems to give the best resolution)

on the same screen before clicking okay

- make sure the **dpi is 450** or greater.

- make sure compression is all the way to the right for better quality

DESMOS

BORDER: needed for adding color in Photoshop. (You will need to create parametric linear equations that border your art.)

GETTING RID OF LINES IN BACKGROUND: allows art to be uncluttered. Go to wrench in upper right corner. Unclick Grad and Axis for a white background.

EXPORTING FILE: allows you to open the artwork in Photoshop in the best way. In top black bar: Share Key>,Export Image>Size – Large Rectangle>Line Thickness - Medium>Download PNG.

3. Let students know we will work one more day in class tomorrow and then we won't come back to the project for a bit.

Day 6

1. Students continue to work on project.
2. Take 10 mins or so to show them:
 - how to open a saved project in Photoshop – 600 pixels or more
 - how to save from Photoshop – Highest Quality
 - how to drop in color – paint bucket
 - how to enlarge so that they can get the white spaces

3. Remind them that Google can help them do just about anything on Grapher/Desmos or in Photoshop.
4. Tell students we will only have one more day in class to work on project together and all other work must be done outside of class.

Normally, we go back to regular chapter work at this point for a few days.

Day 7

1. Working day.

Then we go back to chapter work for a few more days and finally we have presentations.

Day 8-10 - Presentations

1. Students are asked to do a 5 -7 minute presentation that includes:
 - color copy on 8.5 by 11 cardstock of their final piece
 - a larger projection on the white board of their final piece
 - their intent
 - how their project morphed
 - the math they used
 - the new things they learned
 - what they would improve/do differently if had more time
2. Basically, we want them to share their process.
3. Some students do PowerPoint slides that show their work in progress. Others just project their final piece. Our hope is that the above isn't a list that students check off as they talk about their art, but rather that it helps them structure their journey.

(We have course culmination week at our school where each class meets for two hours. Instead of an exam during this time we do presentations. But sometimes we need to back the presentations back into the week before so everyone gets the appropriate amount of time.)

POSSIBLE Adjustments to save time:

Move Day 2 Video to homework on Day 1 and discuss project handouts/overview on Day 1.

Day 3 could become half a day and you can teach half the day.

Day 4 needs to stay

Day 5 needs to stay

Day 6 & Day 7 could happen as one day and the kids do the work outside of class.

Presentations could be just showing the artwork around the room. Or just a two minute each. Or no presentation and the kids just turn in their art and their paper.

Honors Algebra 2 Project – Student Overview

Mathematical Art inspired by Brigit Riley

During the course of this project, you will create a piece of artwork using two computer programs - Grapher and Photoshop. You will use the functions that you have studied this year and their transformations to create an original piece of art that is inspired by the work of Brigit Riley. In the end, you will be assessed on four things – your process, final piece of art, a written piece, and a class presentation where you show you can talk about the mathematics involved in your project.

Process

I will observe:

- your use of time
- your collaboration with others
- your tenacity/grit/perseverance
- your trouble-shooting/problem-solving strategies

Artwork

Your piece of art will need to:

- be created with grapher and use a program like photoshop to add color
- incorporate the three tenets of Ms. Riley's work: light, depth, movement
- be printed on white cardstock in full color
- be signed, dated, and named

Written Piece

Your written piece should include:

- your original sketches
- your group's critique/feedback sheets
- a discussion of your "artist's intent" (if it changed from the original sketch, then discuss how that happened and why)
- a list of equations you used in Grapher
- a discussion of your process as you worked to determine what was needed to achieve your intent (including what transformations were needed)
- a discussion of any math you "discovered" or learned in order to create your piece
- a discussion of what you would do differently next time, or what you would do to improve your project if you had more time

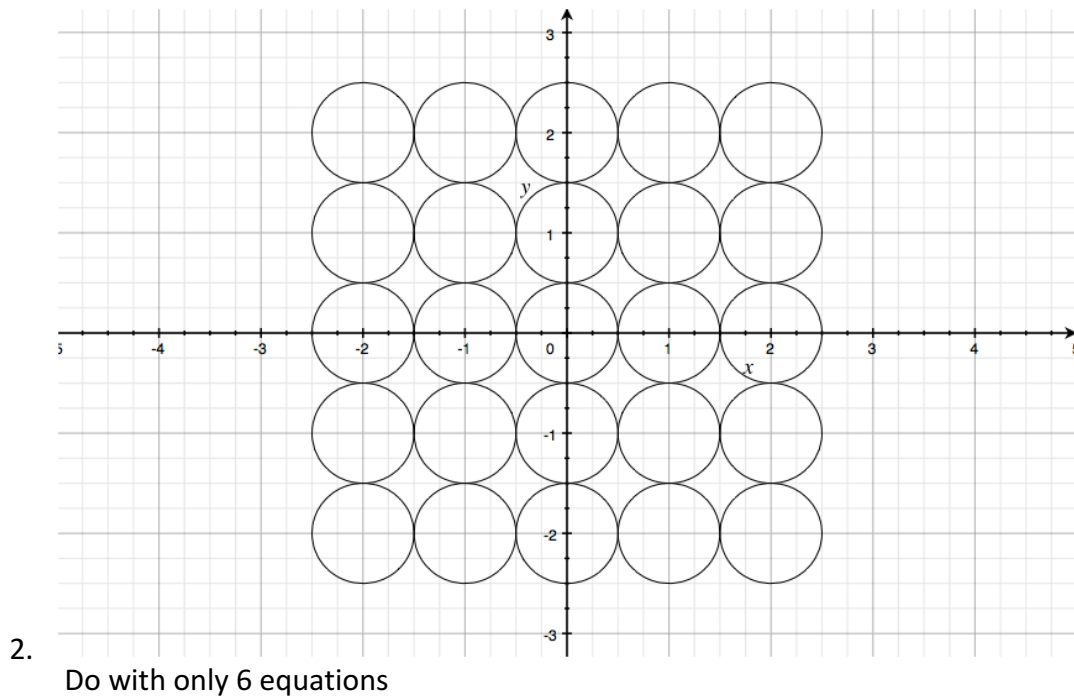
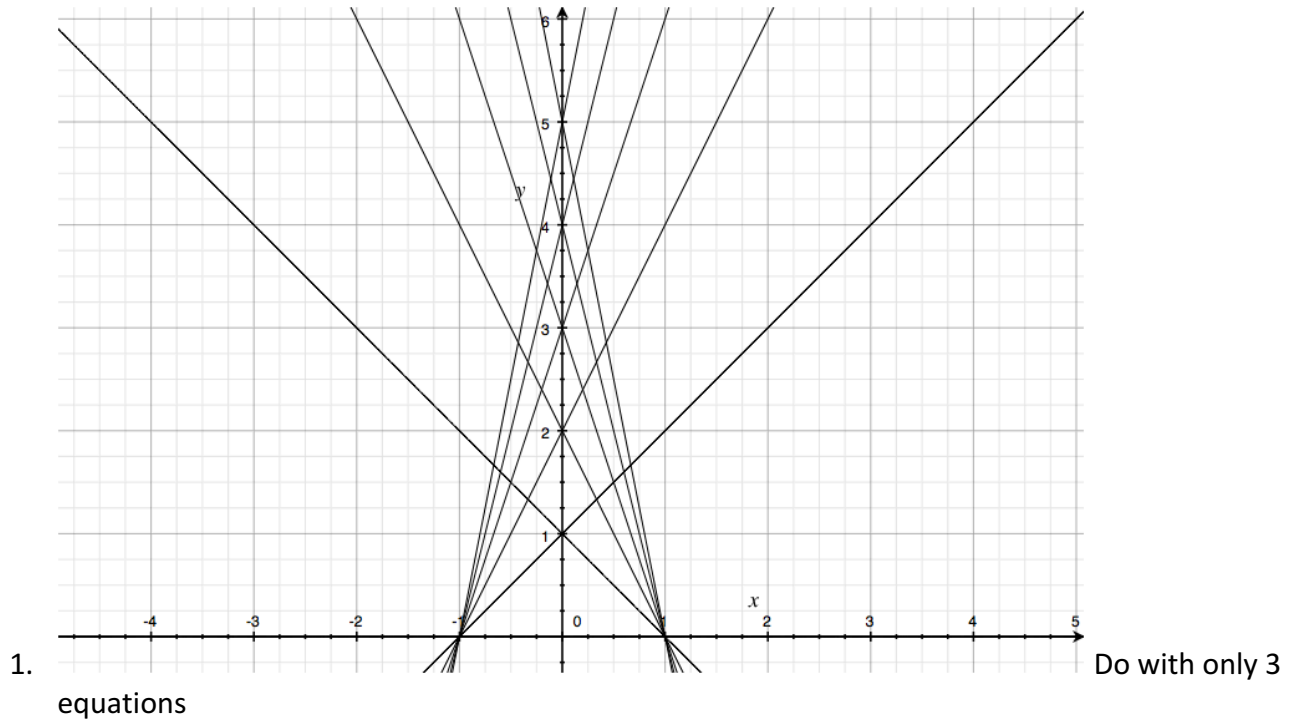
Class Presentation

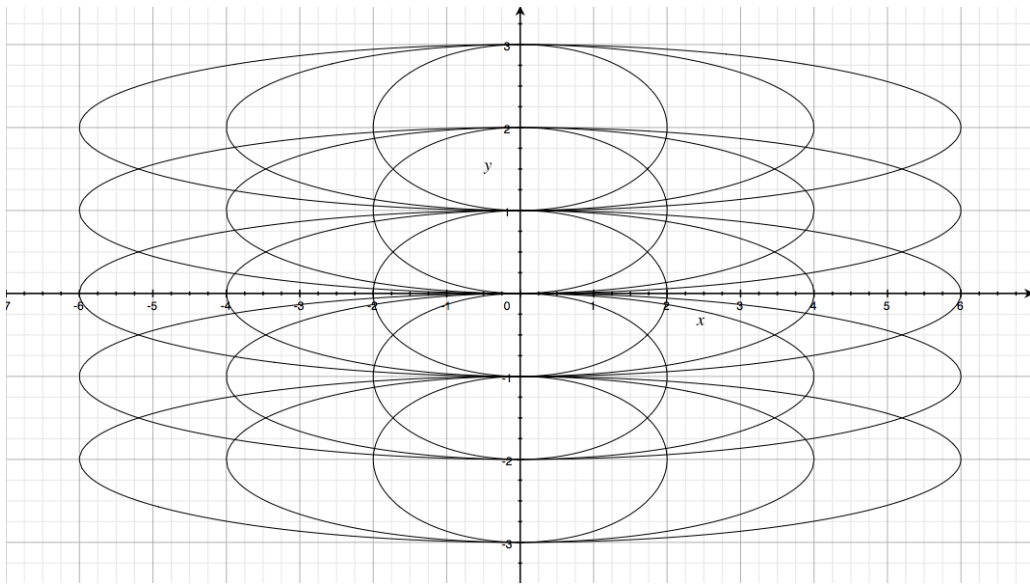
You will have 3 to 5 minutes to present your final piece of art to the class.

Most of all, I want you to have fun - recognizing that math is in art and art is in math!

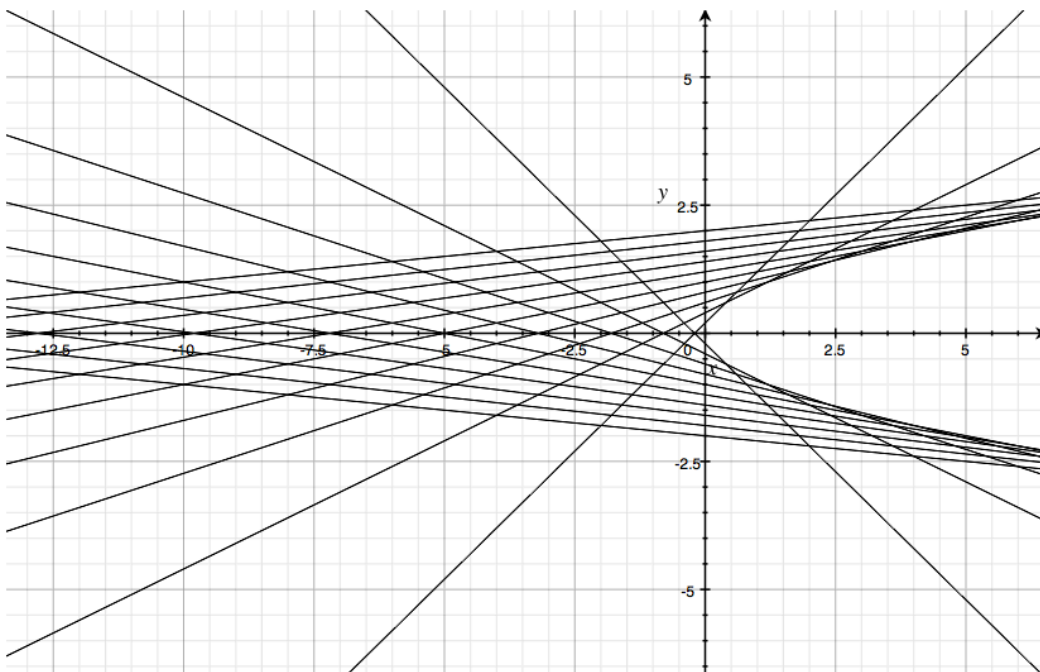
Desmos Trial for Students

Try create these graphs in Desmos using only the number of equations stated:





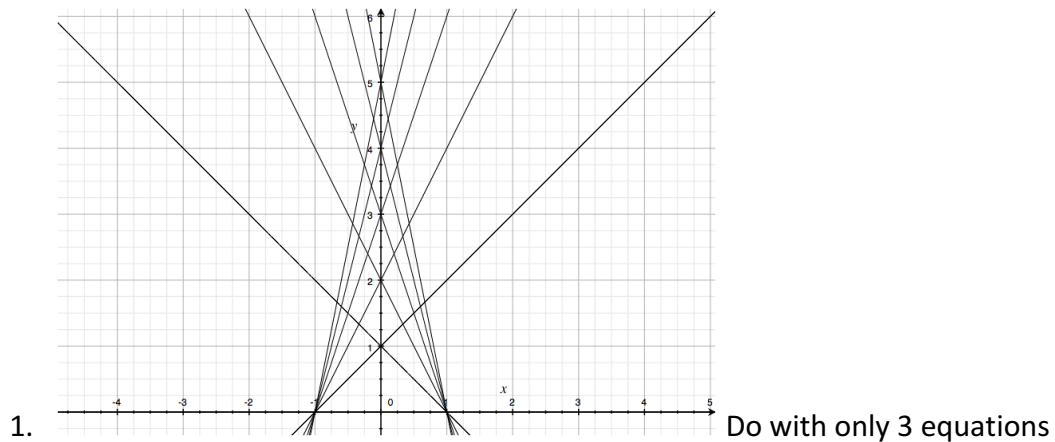
3. Do with only 3 equations



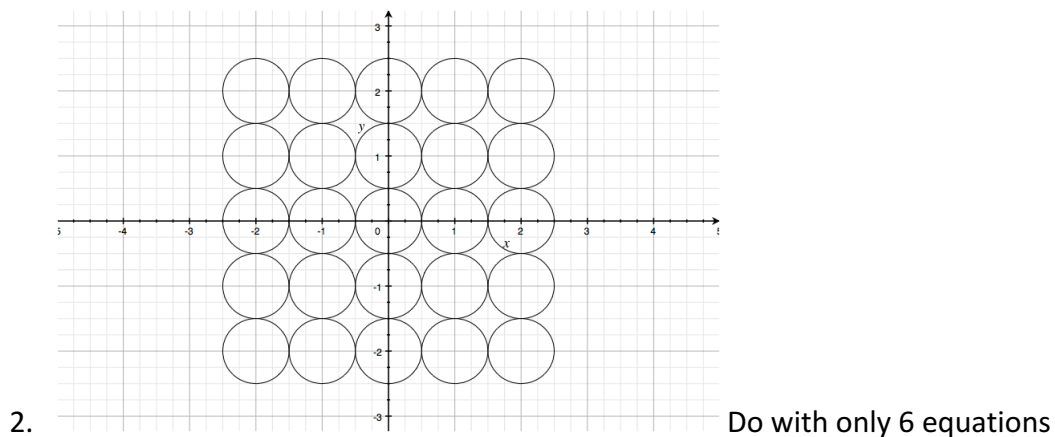
4. Do with only 2 equations

Desmos Trial for Students - Solutions

Try create these graphs in Desmos using only the number of equations stated:

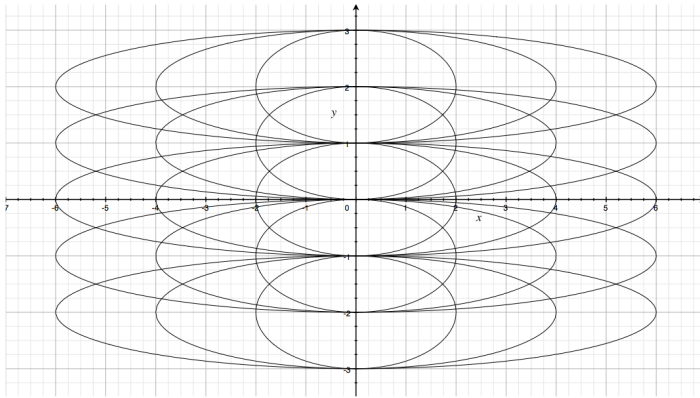


Solution: $k = [1, 2, \dots, 5]$ on line 1
 $y = kx + k$ on line 2 and
 $y = kx + k$ on line 3



Solution: $k = [1, 2, \dots, 5]$ on line 1

$(x - h)^2 + (y - 2)^2 = \left(\frac{1}{2}\right)^2$ on line 2 and on the next 4 lines change the value in the y parenthesis to $y - 1, y - 0, y + 1, y + 2$

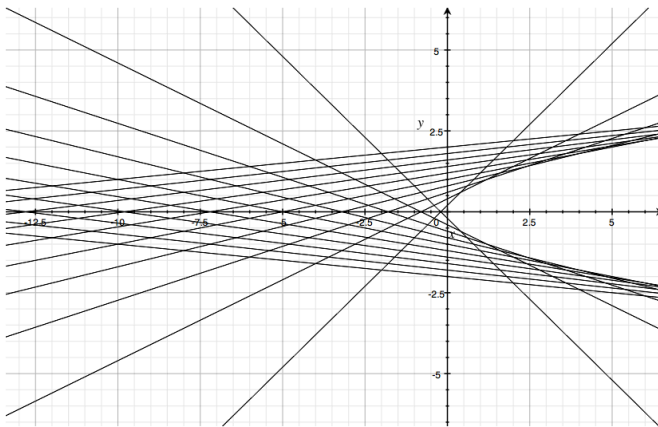


3.

Do with only 4 equations

Solution: $k = [-2, -1, \dots, 2]$ on line 1

$\left(\frac{x}{2}\right)^2 + (y - k)^2 = 1$ on line 2 and on the next 2 lines change the value in the denominator of the x parenthesis to 4 and then 6



4.

Do with only 2 equations

Solution: $h = [-10, -9, \dots, 10]$ on line 1

$y = \frac{x}{h} + \frac{h}{5}$ on line 2

Students Initial Sketches Critique

Name of Presenter _____

Name of Notetaker _____

Members in Group _____

1. Things the Artist had to share about their piece:

2. Intent that the artist was trying to portray:

3. Warm Comments from Group members:

4. "I wonders" from all group members:

5. Any other details/things to remember:

Student Brigit Riley Video
YouTube times & important points

Brigit Riley Part 1

- <https://www.youtube.com/watch?v=nnlBdZPO8lQ>

:42 to 1:14 –	What inspired her?
1:37 to 2:57 –	talk about the trials....
5:14 to 5:38 –	Who/what guided her art?
6:02 to 7:00 –	What does she say about rhythm and repetition?
8:26 to 8:54 –	Light?

Brigit Riley Part 2

- <http://www.youtube.com/watch?v=uz7Vf4O7nQE&feature=related>

0 to :42 –	Listen for “shimmer.” What is the point?
1:20 to 1:48 –	What does the eye do?
2:32 to 3:05 –	What does Brigit say about color as light vs. real light?
4:00 to 5:42 –	What does she say about depth and color?
7:20 to 9:47 –	What do you think I might have wanted you to see in this video?

Brigit Riley Part 3 – watch if you have time.

Teacher - Brigit Riley
YouTube times & important points

Brigit Riley Part 1

- <http://www.youtube.com/watch?v=Z1lQCTunGxg&feature=related>

:42 to 1:14 – she talks about Cornish countryside - light

1:37 to 2:57 – narrator talks about color and what “looking” feels like what trials will work or not – how energy is created

5:14 to 5:38 – says who guided her art – Seurat and futurism & optical sensation of movement

6:02 to 7:00 – rhythm and repetition talk about movement by Brigit herself – alive rhythm and changing pace

8:26 to 8:54 – narrator talks – shimmer and passing of light

Brigit Riley Part 2

- <http://www.youtube.com/watch?v=uz7Vf4O7nQE&feature=related>

0 to :42 – form moves on an axis and shimmers in space

1:20 to 1:48 – eye feels movement and energy

2:32 to 3:05 – Brigit talking about color as light vs. real light and how to use color - “seeing it is when the painting starts to live”

4:00 to 5:42 – Brigit talks about color again – and depth of distance

7:20 to 9:47 – shows how she works with others and makes trials

Mechanics					
Has art piece printed on cardstock	4 pts clean, sharp, signed, dated	3 pts Has 3 of the 4 items in best	2 pts has 2 of the 4 items in best	1 pt has 1 of the 4 items in best	0 pts not turned in
Has written report	4 pts addresses all four items	3 pts addresses three of four items	2 pts addresses two of four items	1 pt addresses one of four items	0 pts addresses none of four items
Has original sketches	2 pts has both sketches		1 pt has one sketch		0 pts no sketches
Has group critiques	2 pts has both critiques		1 pt has one critique		0 pts no critiques
Has list of equations	2 pts all equations are present		1 pt some equations are missing		0 pts no equations
Project turned in on time	2 pts ready at beginning of class		1 pt assembling project in class, but complete OR 1 day late		0 pts 2 or more days late
Brigit Riley Components					
Depicts movement	4 pts Clear - pulsates	3 pts Clear - no pulse	2 pts Hard to "feel"	1 pt very little movement	0 pts No Movement
Depicts depth	4 pts Uses equations & color - clear	3 pts Uses equations and color - less obvious	2 pts Uses equations OR color clearly	1 pt Uses equations or color less obvious	0 pts Little or no depth perceptible
Uses Color as Brigit - depth, movement, afterimage, light	4 pts For all 4 items	3 pts For 3 of 4 items	2 pts For 2 of 4 items	1 pt For 1 of 4 items	0 pts Unsuccessful at all four
Intent is clear in art piece, report, presentation	3 pts Clear in all areas	2 pts Clear in two areas	1 pt Clear in one area	0 pts No idea of intent	
Mathematical Components					
Includes multiple functions from this year in Non-trivial ways	4 pts Does both	3 pts Few equations in non-trivially	2 pts Few equations Trivially or one equation nontrivially	1 pt Uses 1 equation	0 pts Does neither
Equations use transformations	4 pts Many Eqs are transformed	3 pts Several Eqs are Transformed	2 pts Few Eqs are transformed	1 pts One Eqs is transformed	0 pts No Eqs are transformed
Through final piece (or conversations) shows an understanding of how the transformations work	4 pts Uses in multiple ways	3 pts Some confusion about trans	2 pts uses few trans	1 pt uses few trans & very confused	0 pts No transformations

Uses variables to minimize number of equations needed	2 pts Condenses Eqs everywhere possible		1 pt Condenses Eqs in many places		0 pts No Eqs with variable
Problem Solving					
Worked on project outside of class	2 pts Progress made between each class		1pt Progress made between most classes		0 pts No Progress btwn classes
Collaborated with Classmates	2 pts Seen/Heard on Multiple equations		1 pt Seen/heard from time to time		0 pt Worked solo always
Showed tenacity/grit when stuck	3 pts never "gave up"	2 pts sometimes asked for help first	1 pt usually asked for help first	0 pts always asked for help immediately	
Presentation					
Clearly prepared for Presentation	2pts has sketch or materials, presentation flows smoothly		1 pt has materials, presentation has a few bumps		0 pts Unprepared
Had a focus/purpose (related to project?)	2 pts Clear "thesis" to presentation		1 pt Presentation "thesis" a bit "fuzzy"		0 pts no "thesis" - rambles
Overall	4 pts 1 of Best Project Ever	3 pts Really great project	2 pts Good project	1 pt Okay project	0 pts Seems thrown together
TOTAL (60 points possible):					

Comments: