Drawing a Figure with Code Rubric

MIT 8 Quarters 1 & 2

Learning Targets: I can communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
I can contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
I can create a final product that reflects my coding project using a variety of materials.

Students worked in groups of 3-4 to design a computer program that either draws a figure or plays a game and then build a product that reflects the coding using a variety of materials. Although there were specific roles, students were required to all work together to complete the task. Each group designed a shape/figure or game on the computer using javascript through the coding.org website. Once their coding was complete, they had to make a final product that reflected their coding. They were allowed to do the traditional taping of the object on the floor or work in the Maker Space to create another product. Each group presented their final product to the class and explained the coding and the design of the product.

Selection 1: [redacted]ll
Design: Lazy Code
Product: Used projector, paper, and pencil to draw a large image of the coded figure.

Selection 2: [redacted]ar
Design: Capital City Logo
Product: Multi-colored tape design

Selection 3: [redacted]lo
Design: Computer Tag Game
Product: Robot heads

(2)

Reflection on Drawing a Figure with Code (PM Class)

Name: [redacted]ar Homeplace Teacher: Mr. Shaw

1. In your own words, write 3-4 sentences about what your group was supposed to complete in this project.

   Our group was supposed create a drawn figure on a coding website. We decided to create the capital city logo. Then we had to, in some way, physically create what we had coded. In our case we used tape to make a model of the figure.

2. What do you think the learning goals were for students? What did Ms. Jackson want you to learn and understand?

I think the learning goals for students were learning how to problem solve, work together, and present work. We were also supposed to learn coding. I believe that these were our goals because the coding required a lot of intelligence and required us to puzzle through many things, and we still required help to do some parts of our design. We also had to work together in that if we argued we did not get very much work done and we also would not have presented well which ties into the part about presenting which appears to be a goal because it was a large part of our grade.

3. What did you like about this project?

I liked the challenge of using trial and error to figure out solutions to our problems. This was fun because I like puzzles and most of my work does not require me to think through this many things. I also think it was fun to figure out everyone's strengths and how to use them. I enjoy this because I find that using different strengths can help work go by quicker and is very similar to solving puzzles.

4. What didn't you like about this project?

I did not like the difficulty of trying to always make sure everyone is involved. This was challenging because some people wanted to help only with certain things, do everything, or not help at all during parts of the project.

5. How did working in a group help you meet the learning goals?

It made it easier to do more work in a smaller amount of time. This caused us to be able to do many more things since we had more time to do them. It also gave us more ideas since everyone would share what they thought would be best. We could then decide what to do based off of five minds not just one.

6. How did working in a group make it difficult for you to meet the learning goals?

It made it so different ideas, personalities, and people were always clashing. This then caused us to fight instead of get work done and it created tension that made it difficult to work as a team. People also put their own irreversible decisions into effect without asking everyone else, which caused more conflict and negative emotions.

7. What more, if anything, did you need from the teacher to complete this project?

We needed advice on how to code certain parts of our project. There were some parts of the project where we hit a wall and needed advice on how to accomplish different things. After trying to do something for hours it became necessary to ask an outside source for assistance.

8. How would you score your **effort** in completing this project? Why did you choose the score you did?

1. Does not yet meet the standard.	2. Approaching the standard.	3. Meets the standard.	4. Exceeds the standard.

I would give myself a three because I attempted to do everything before I asked for help on any specific thing. I also did many parts of the project even if my ideas were changed I still did attempt to use them. I also did most of the coding while keaping several groupmates on task.

How well did **you** meet these standards? (circle one)? Why did you choose the score you did?

1. Does not yet meet the standard.	2. Approaching the standard.	3. Meets the standard.	4. Exceeds the standard.

I would give myself a three because I did my best to participate and help others participate. I also did a large portion of the work in coding and some work in drawing the figure. I attempted to work well with others even when I disagreed with them.

10. How well did each member of your group meet these standards (circle one)?

Group Member Name: [redacted]

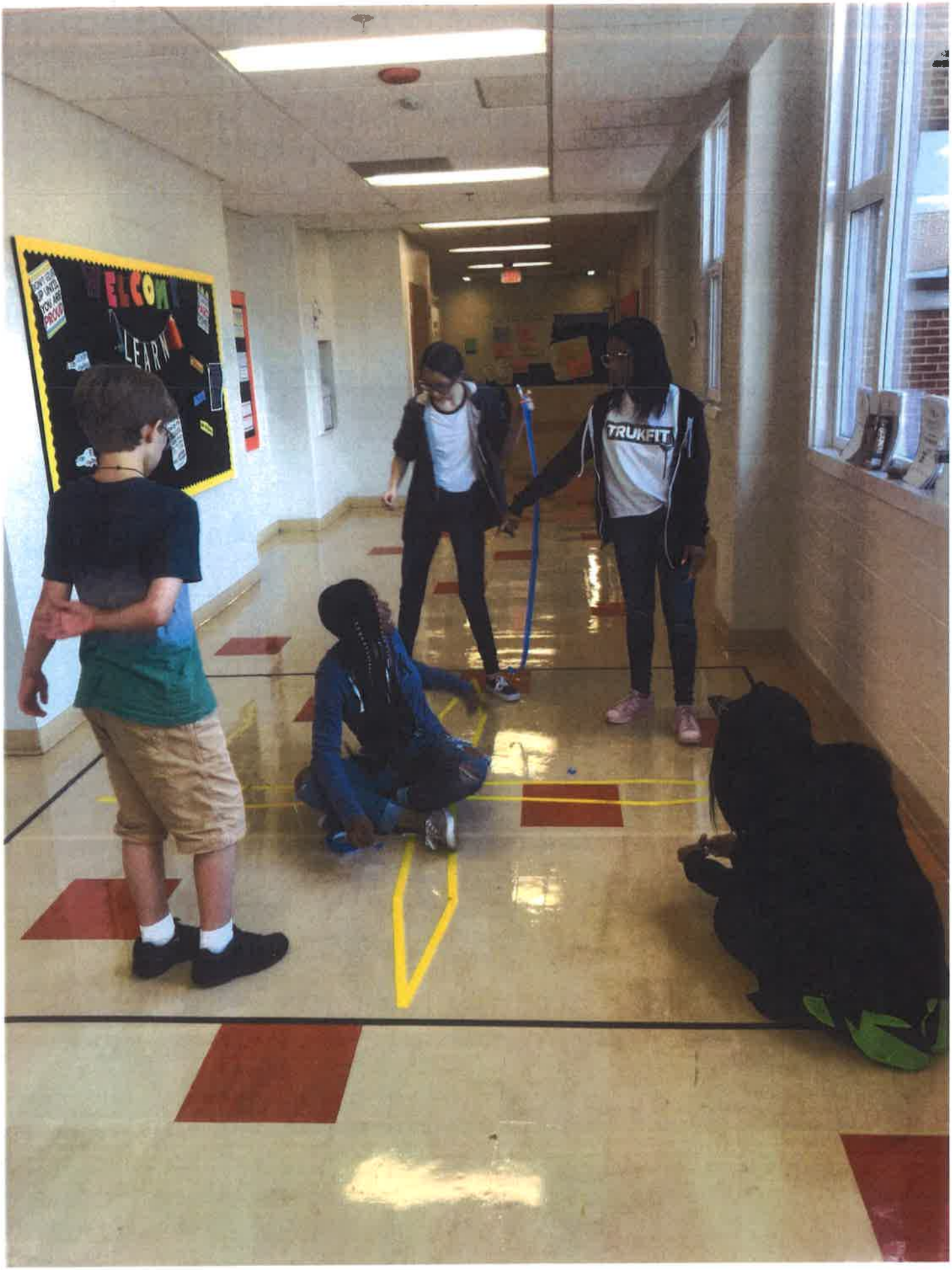
1. Does not yet meet the standard.	2. Approaching the standard.	3. Meets the standard.	4. Exceeds the standard.

Group Member Name: [redacted]

1. Does not yet meet the standard.	2. Approaching the standard.	3. Meets the standard.	4. Exceeds the standard.

Group Member Name [redacted]

1. Does not yet meet the standard.	2. Approaching the standard.	3. Meets the standard.	4. Exceeds the standard.


TRUKFIT

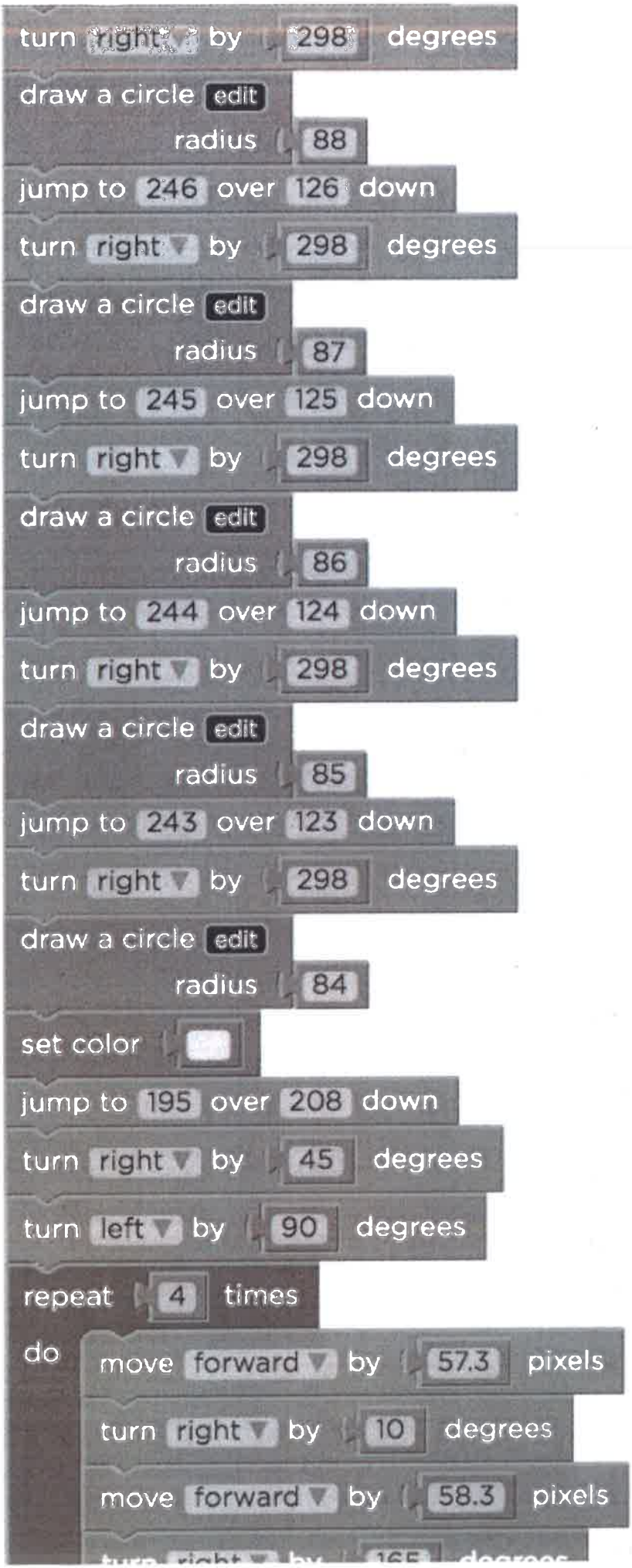
Reset

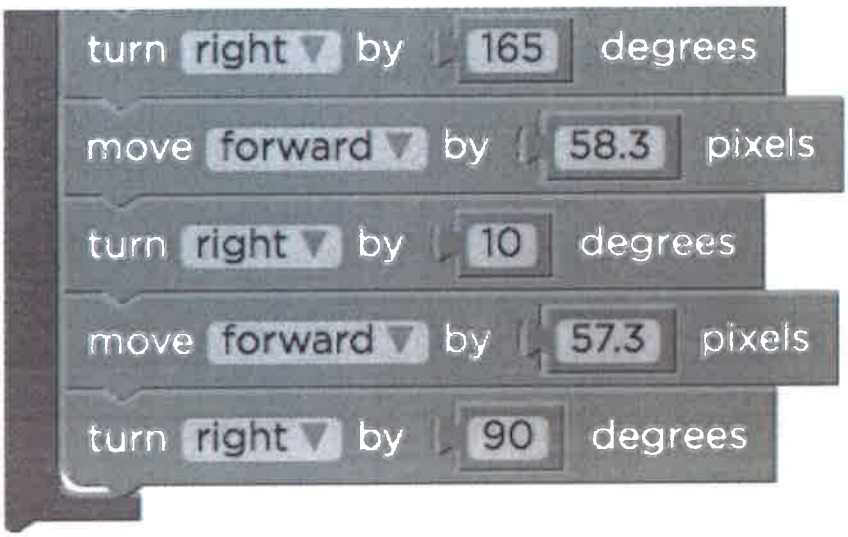
Finish

Blocks

Actions
Brushes
Loops
Math
Logic
Functions
Variables

```
when run
set color
jump to the middle center position
repeat 4 times
do
    move forward by 86 pixels
    turn right by 10 degrees
    move forward by 87.5 pixels
    turn right by 165 degrees
    move forward by 87.5 pixels
    turn right by 10 degrees
    move forward by 86 pixels
    turn left by 90 degrees
set color
jump to 250 over 130 down
turn right by 200 degrees
draw a circle edit
    radius 90
jump to 249 over 129 down
turn right by 298 degrees
draw a circle edit
    radius 90
jump to 248 over 128 down
turn right by 298 degrees
draw a circle edit
    radius 89
jump to 247 over 127 down
```


turn right by 298 degrees
draw a circle edit
radius 88
jump to 246 over 126 down
turn right by 298 degrees
draw a circle edit
radius 87
jump to 245 over 125 down
turn right by 298 degrees
draw a circle edit
radius 86
jump to 244 over 124 down
turn right by 298 degrees
draw a circle edit
radius 85
jump to 243 over 123 down
turn right by 298 degrees
draw a circle edit
radius 84
set color
jump to 195 over 208 down
turn right by 45 degrees
turn left by 90 degrees
repeat 4 times
do
move forward by 57.3 pixels
turn right by 10 degrees
move forward by 58.3 pixels


turn right by 165 degrees
move forward by 58.3 pixels
turn right by 10 degrees
move forward by 57.3 pixels
turn right by 90 degrees

Group Presentation on Drawing a Figure with Code

Names: [redacted]

As a group, answer the following questions. You will present your answers to the class and you will use your final product to demonstrate. Each member of your group should participate in the presentation. Just present your answers (i.e. "Our roles were…), don't read the questions.

1. What were each of your primary roles during the project?

[redacted] Leader
[redacted]: Coder
[redacted]: Designer
[redacted]: Problem Solver
[redacted]: Professional Taper

2. What figure did you create? What shapes did you use? What was your process for creating your product?

We created a figure resembling the Capital City logo. We used rectangles, triangles, and circle segments. During our process we wanted to create a game but we met enough issues that we decided to instead create a drawn figure. We after many struggles with the three fourths circle we eventually succeeded, then we started using tape to make the image on the floor.

3. What were 3 different commands you used to create your figure? You need to walk the class through the coding using your figure.

- We used the jump to middle center code to make the figure start in the exact center.
- We used the set color command to change the color of our figure.
- We used the loop four times command to make each set of four points in the star exactly the same.

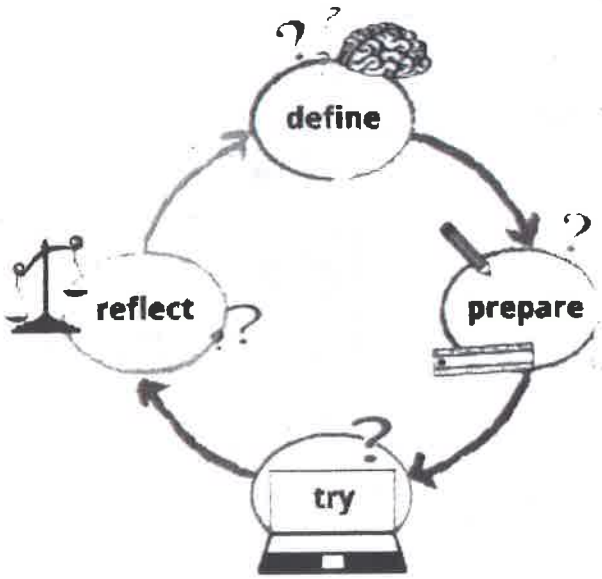
[redacted]

Drawing a Figure with Code

You will work in groups of 3-4 and you will have rotating roles. Although you will have specific roles on certain days, you must all work together to complete the task. Each group will design a drawing/game that you will eventually "draw" on the floor or create in a model. You will write the code necessary to complete the project. You must first write the code without using functions. Then you will write the code for the same figure but you must include at least one function. Your group will make a final presentation to the class showing your final product.

Assessment: You will be graded on the complexity of your project, how well you work together as a group, your ability to write the correct code, and your final product.

The Design Process



Designing software means solving lots of little problems, all the time. The main problem in software design is what to create in the first place.

Step 1: Assign Roles for Week 1:

Group Leader: Elliot

Coding Lead: Janiya

} equal balance

Group Names: [redacted]

Drawing a Figure with Code Rubric

Category	4	3	2	1
Group Work	Group members worked well with each other to design and code a complex design. Each member contributed constructively and respectfully while working towards a common goal.	Group members worked together, although some members worked more than others.	Group members worked together sporadically and struggled to get each member involved/one or two members didn't contribute.	Group members worked separately to complete the design and most didn't contribute to design.
Complexity	Design of figure was complex, consisting of multiple parts of the design and multiple functions.	Design of figure was complex and included a function in the coding.	Design was basic but the coding included a function.	Design wasn't complex or have a function in the coding.
Coding	Coding was completed properly and was complex. Coding was completed on the computer to draw the design.	Coding was completed properly and the design was drawn on the computer.	Coding was completed but included some problems that didn't work on the computer.	Coding wasn't completed or didn't work on the computer.
Group Presentation	They each contributed to communicating their process and product to class.	Group completed their presentation and all contributed although not evenly.	Group presented the design but only one or two members contributed.	Group didn't present their design.
Final Product	Product created with available tools beyond simple tape on the floor and used a variety of materials/tools.	Product was beyond simple taping on the floor.	Product was not quite complete but little effort was put into the design and no varied materials.	Product wasn't complete and showed little effort.

3.8