

Stain Glass Graph Project

By, Sarah W.

This stained glass project asked me and my group members to make a unique piece of art. Ms. Myers gave us a set of equations to graph. Then she told us to make it our own. Add designs that inspire us, stuff like that. We could use any supplies we wanted, 3D or not. It was all up to us. She didn't give us many rules for this, and I thought it was fun. For example, my group decided to make ours on Seasons. We had sections for Winter, Summer, Spring, and Fall. Then, we drew out stuff on the seasons that meant a lot to us. For Winter, we glued on a Christmas tree because we like to spend time with our families for Christmas. This project has both math and art combined in it, which makes it pretty cool.

Some colors make me feel different ways. Blue, Purple, and Black don't really strike my emotions very much. But colors like Red, Pink, and Yellow, make me feel happy. One graph I liked is called Oddity. It had different designs and colors, and I wasn't very sure why that group designed it that way. But once I read about it, I realized what it was really about. There were four people in the group, and they couldn't decide what things they had in common. So in the middle, they colored it green and gold, Jouett colors, and then all of them got a corner to express themselves. I thought this was a good idea because it showed how different people can be. However, together, with the differences, you can make something beautiful. This happened to me in lots of the graphs, I didn't get it at first, and then once I read what it was about, I appreciated it a lot more because I understood it. Then, I could relate it to my own life.

In this project I've learned many things about math and data. One thing I learned is that two lines can have the exact same y-intercept and very different slopes. If you have a positive slope, then the line goes upwards, as you go from left to right. With positive slopes, while the x value gets larger, the y does too. If there is a negative slope, then the line heads downwards. For it, while the x value get higher, then the y value gets lower. If you have a slope of zero, then the line will go straight across the grid, from the right side to the left.

From this project, I learned how to find the y-intercept in an equation.

$y = -1/2x - 4$ This equation has a y-intercept of -4

$y = 1/2x - 4$ This equation also has a y-intercept of -4

These two both have a y-intercept of -4. But there's something else about these equations that popped out. The slope of one is $-1/2$, and the other one is $1/2$. If you were to graph these slopes, then it would come out like a "x".

In all of these graphs, there was a shape that appeared in all of them called a chevron. The chevrons came out different on each graph. But all of them were similar figures. Some were long and thin. Some were fat and short. The reason why they came out differently, with the same equations, was scaling. If there was more space in between the units, then the chevron would be longer than one that has units with less space in between. For example, if one person has a chevron that is 5 units tall, and each unit is one inch, then the that chevron will be 5

inches tall. If there's another group with each unit being 2 inches per unit, then that same chevron would be 10 inches tall. Group number one, had a shorter chevron than than group number two. In fact, group number two's was twice as tall. If you wanted it to be wide and had it 5 units across already, then you would make the x units bigger.

An equation with two variables is a rule for an input, output machine. When the x-value goes in, you do something to it, and then the y-value comes out. You can keep doing that with the same rule and different x-values, then you can make a table from that data. $y=mx+b$ is the form of the equation for a line. "m" is the slope and "b" is the y-intercept. With $y=mx+b$, you can make any line you want. In this project, math and art were combined together. I learned about slopes and y-intercept and I also learned about art, and teamwork. In groups we talked about how it should be done and then we worked on it really hard. I think it was a fun, cool way of combining different things we learn about in school, rotating around slopes, y-intercepts and linear equations.