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Looking Glass Project

Reflected: Symmetry Through the Looking Glass

In this project, I explored various aspects of symmetry and reflections through mirrors, incorporating personal interest through the mathematics behind the constructions, as well as a defining theme from *Alice Through the Looking Glass*. I was inspired by the works of Scott Kim, a famous ambigram maker and puzzler to create these reflected constructions.

My project consists of two 12"x12" mirrors that are hinged together at the center using some handy duct tape and hot glue. The mirrors are backed by some decorated cardboard to create a sturdier base for the glass. I found the idea to use hinged mirrors when I was browsing online and found many teaching instructions using them to teach geometry. I then created a series of 6 different reflected words, including the Jabberwocky poem, Humpty Dumpty, Alice, two Through the Looking Glass variations, & Tweedledee and Tweedledum. I created most of these on Microsoft Word, reflecting the images so they could be read within the mirrors. I also created an ambigram "Alice" illusion that can be read both forwards and backwards.

I really enjoyed exploring this project because I've always been fascinated by mirrors and the physics that lies in the reflections. By changing the angles of the two mirrors, you can create more than one image that will be reflected, that can be seen in the following pictures. It is essentially creating a kaleidoscope sort of device as the light from the reflections bounce back and forth between the two mirrors.

This project helps me further my goals for the Honors assessment in the fact that I hope that I can generate discussion with these reflections. By changing the angle of the mirror or even the position of the words, you can show a variety of shapes and variations. Students can play around with the positions of the reflections and try to understand why it works!

The mirror scheme greatly incorporates the Looking Glass theme with the reflected words and symmetries in the mirror. In the text, when Alice first looked through the mirror, she saw everything reflected backwards and unreadable, and this backwards theme is prevalent throughout the entire book. By reflecting Alice-inspired words, I hope to convey the whimsical illusions and beauties of the Alice world.



