



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

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| Name(s) Michael F. Hair, III | Project Number J1313 |
| Project Title To Pinhole or Not to Pinhole? | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project was to determine if pinhole glasses provide better vision than prescription glasses or lenses.</p> <p>Methods/Materials Ten human subjects were tested for distance, peripheral, and darkness vision. During the distance vision testing, the subjects were 20 feet away from an eye chart. Their vision was checked in each eye separately, with and without pinhole glasses. Next, during the peripheral vision testing, the subjects were placed 15 feet away from a center cabinet while an assistant was placed 10 feet to the side while waving a yellow piece of paper. The subjects stated if they could see the yellow paper with each eye separately, with and without pinhole glasses. Lastly, for darkness vision testing, the subjects were placed 55 feet away from an assistant holding papers marked with single letters. The subjects identified three different letters in each eye separately, with and without pinhole glasses.</p> <p>Results Distance vision testing showed that 75% of the subjects saw better with pinhole glasses. Ninety-five percent of the objects seen during peripheral vision testing occurred while the subjects were not wearing pinhole glasses. Only 20% of the objects were seen while wearing pinhole glasses. Results from the darkness vision testing showed that an average of 2.7 out of 3 letters were seen without pinhole glasses and only an average of 1.3 out of 3 letters were seen with pinhole glasses.</p> <p>Conclusions/Discussion Based on the results of each step of vision testing, pinhole glasses did provide better distance vision when compared to other lenses. Pinhole glasses did not provide better vision during peripheral and darkness vision testing. Overall, pinhole glasses didn't provide better vision than other lenses. Therefore, my hypothesis, pinhole glasses will provide better vision than other lenses, was proven incorrect.</p> | |
| Summary Statement The objective of my project was to prove if pinhole glasses provide better vision then other lenses. | |
| Help Received My mom helped me with my board layout and my uncle helped me perform the tests at his office. | |