



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Chris T. Schaller	Project Number J1015
Project Title The Effects of Monocular vs. Binocular Vision in Judging Target Alignment	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This project tested the ability to align an object accurately with a distant target while using monocular or binocular vision. It also attempted to discover whether monocular vision with the dominant eye versus the non-dominant eye would differ significantly in the ability to judge target alignment.</p> <p>Methods/Materials Eighty-four subjects were tested. Every subject was at first tested for eye dominance and the dominant eye was recorded. Subjects were given a six-meter long dowel that was placed on the floor with a large button at the end of it. Subjects had to align the button with three other identical buttons at one, three, and five meters. Subjects would do this with left eye open, then right eye open, and then both eyes. After trying to align the button at the selected target with one eye, the subjects could further adjust using both eyes if not satisfied with either of their monocular results. This was repeated at the one-meter mark, the three-meter mark, and the five-meter mark with the left eye and right eye.</p> <p>Results Binocular vision provided more accurate results than monocular vision while judging depth perception. Of the eighty-four subjects tested, none were satisfied with their monocular results, and each adjusted the target when given a chance to use both eyes. Accuracy within one centimeter or less in aligning the target while using monocular vision occurred nearly twice as often at the three and 5 meter distances when the subject was using their dominant eye. At the one-meter mark, subjects were able to achieve more accurate results with their non-dominant eye.</p> <p>Conclusions/Discussion The dominant eye is said to be used for "distance," and the non-dominant eye for "near" vision. The results of this experiment agreed with this although the experiment would have to be repeated many times to confirm the findings.</p>	
Summary Statement This experiment tests whether monocular vision with the dominant eye versus the non-dominant eye will differ significantly in the ability to judge target alignment accurately.	
Help Received Rhoades School students that participated in testing	