



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Molly M. Shine	Project Number 31811
Project Title The Effect of Monocular Vision vs. Binocular Vision on Optical Illusion Perception	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this experiment was to measure the effect of monocular vision versus binocular vision on optical illusion perception. The hypothesis was that if the subject's dominant eye was covered then optical illusion perception would be different than if both eyes were uncovered.</p> <p>Methods/Materials Ten different black-and-white optical illusions were placed one at a time in a shadow box. Over three different days, twenty 4th grade girls were studied. Each was asked to state her dominant hand (19 right handed and 1 left handed). One half of the students were each asked to cover their dominant eye for the test. One-by-one each student was brought into a separate room, shown the ten illusions, and asked what the subject saw in each. The answers were recorded on a data sheet.</p> <p>Results The test results showed that all the students were more successful at seeing the illusions that attempted to trick the viewer into seeing something that wasn't present. These same students were less successful at viewing the illusions that had two different pictures in the same illusion.</p> <p>The ten students that used both eyes were 18% more successful than the ten students using only one eye (the other being covered). Thus, the hypothesis was accepted as correct.</p> <p>Conclusions/Discussion While the experiment showed the common sense opinion that two eyes see better than one, the differences measured were less dramatic than the researcher expected. As a student who has worn a patch over one eye for half of each waking day, the researcher was pleased to find that the lowering of successful results was less than one might expect.</p> <p>This experiment, and similar experiments, will over time lead researchers to measure more accurately the differences in monocular versus binocular vision, and to find the causes and cures of the various eye problems, which should result in the improvement of the care and treatment of eye conditions which limit the use of one eye.</p>	
Summary Statement This experiment investigates how patching affects the minds ability to recognize the uncertainties of optical illusions.	
Help Received Mother helped layout board; Father helped set up spreadsheet.	