



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

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| Name(s) Ellen L. McGrew | Project Number J0326 |
| Project Title Did You See That? Study of Peripheral Vision Reaction Time | |
| Abstract Objectives/Goals The objective of this experiment is to see if humans react quicker to peripheral vision or straight vision by measuring reaction time. Methods/Materials A vision reaction test device was constructed of a controller, timer device and a fixture. The controller contained a light selector rotary switch, a start switch and a reset switch. The timer device was a trigger using an old joystick and a computer with timer program with interface configured to joystick controller. This timer program was set to track time to 0.001 seconds. The fixture held test subjects head still and kept the alignment of the lights (straight forward, 30, 60 and 90 degrees right and left). Five female and five male test subjects were explained the experiment. Each of seven lights were turned on five times in random order and reaction time recorded for a total of 35 measurements per test subject. Results were tabulated and evaluated. Results On average, the test subjects reacted nearly 100 milliseconds faster to light straight in front of them than to that of their peripheral vision. This was also the case for the girl and boy averages separately. There was no significant difference between right and left side vision. There was extreme time variations among the individual test subjects. Conclusions/Discussion The results showed that the test subjects reacted quicker to light straight in front of them compared to light in their peripheral vision. Several reasons for this are the anatomy of the eye. Cones in the retina react quicker and they are concentrated near the back of the eye. Also, age variation in the test subjects, as some of the younger test subjects may not have fixed their gaze forward as instructed. Peripheral vision reaction time is important as more computer displays are on glasses and in different fields of vision. | |
| Summary Statement My experiment showed how reaction time to visual stimulus at various angles of vision can differ. | |
| Help Received My Science Teacher helped me learn the scientific method and how to apply it to this experiment. My father helped me build the equipment to conduct this experiment and helped format the graphs. | |