



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

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Project Title Light Sensitivity in Regenerating Planaria, or The Dark Side of Planaria	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our project was done to determine whether the tail segments of planaria that had been cut in half were as sensitive to light as the head segments. Their light sensitivity was also compared to uncut planaria.</p> <p>Methods/Materials The planaria were first tested for their response to being exposed to light on half of their container, with the other half dark. The number in the light and dark was recorded at the end of a given time period. They were then bisected into "head" and "tail" halves, and the testing repeated during a 17 day observation period. In the first experiment observations started on the 5th day of regeneration due to school schedules. A second experiment was done to observe the reaction to light of the regenerating "heads" and "tails" for the first four days after bisection. It was stopped after the 4th day, again due to school schedules.</p> <p>Results The data for the first experiment was not consistent enough to support the hypothesis. If all data from the first experiment is averaged, then overall the average for all the "head end" observations was 56% in the dark, and for the "tail ends" it was 60%, both lower percentages than the uncut planaria (73%). In the second experiment the data did support the hypothesis, Every time the percentage of "heads" that moved into the dark was higher then the percentage of "tails" that moved into the dark. If the data from all the days in experiment two are averaged, then the uncut planaria have the highest percentage that move into the dark (87%), with the heads having the second highest percentage (55%), and the tails have the lowest percentage moving into the dark (9.5%).</p> <p>Conclusions/Discussion Data from the first experiment did not support our hypothesis, which was if the eye spots of the planaria are their only light sensing organs, then the "tail ends" of regeneration planaria will react less to light than the "head ends". The data from the second experiment does support the hypothesis. We concluded that the eyespot is an important organ for light sensitivity, since the "tail" ends without the eyespots displayed a much lower percentage of dark-seeking behavior.</p>	
Summary Statement Planaria segments without eyespots are less able to sense light and avoid it than segments with eyespots.	
Help Received Our project sponsor helped us to format our project, to order planaria, and to collect equipment.	