



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> Elizabeth G. Erickson	<b>Project Number</b>  22343
<b>Project Title</b> Sunspots	
<b>Objectives/Goals</b> The goal of my project was to determine if I could accurately calculate the sun's rotational period by observing the position of sunspots over time. I predicted I could achieve an accuracy of 0.27 percent. <b>Methods/Materials</b> Using a 6 inch reflector telescope with a solar filter, I made daily observations of sunspot locations. SOHO satellite pictures were also used to supplement my observations. I created a longitude grid that I superimposed over the images. Using this grid, I calculated the daily movement of the sunspots with an accuracy of +/- 1 degree. I used a proportion equation to extrapolate solar period based on the degrees of sunspot movement during the observational time. <b>Results</b> Four sunspots were used to determine rotation period during one 48 hour period. I determined that sunspots A, C, and D period of rotation to be 26.7 days. Sunspot B period of rotation was 25.7 days. Comparing these values to those obtained from NASA (25.4 days) I determined my accuracy to be 5.1 percent and 1.1 percent, respectively. <b>Conclusions/Discussion</b> The hypothesis of 0.27 percent accuracy was not supported by observational data. Percent accuracies of 1.1 to 5.1 were obtained. This was a valuable project for me because required me to apply my math skills to a real life situation. I was really excited to see how my observation diagrams matched the images of the SOHO satellite.	
<b>Summary Statement</b> Using daily sunspot observations, I attempted to accurately determine the sun's rotational period.	
<b>Help Received</b> School provided all materials needed for project. Mom helped edit. Dad reviewed mathematical equations.	