



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jennifer N-J. Lawler</b>	<b>Project Number</b> <b>S1511</b>
<b>Project Title</b> <b>How Accurate Is Parallax?</b>	
<b>Objectives/Goals</b> The purpose of this experiment was to find out how accurate parallax is when determining the distance of stars from the earth. My hypothesis is the further away the star is to the earth, the less accurate the calculation will be. My independent variable is the distance, and my dependent variables are the stars.	
<b>Abstract</b> I used candles to represent stars, and balls to represent the earth and sun. I placed the candles 0.9398, 2.921, 4.9276, and 5.5372 meters away from the earth. I utilized a pole to represent the relative star. I obtained the degree of angles for each star, when the earth is in the January and July position. The baseline was 1.8288 meters. I used the parallax equation: $\frac{1}{2}$ baseline divided by the tangent of the average angles. I did the experiment in inches, but then converted the numbers to meters.	
<b>Methods/Materials</b> I used candles to represent stars, and balls to represent the earth and sun. I placed the candles 0.9398, 2.921, 4.9276, and 5.5372 meters away from the earth. I utilized a pole to represent the relative star. I obtained the degree of angles for each star, when the earth is in the January and July position. The baseline was 1.8288 meters. I used the parallax equation: $\frac{1}{2}$ baseline divided by the tangent of the average angles. I did the experiment in inches, but then converted the numbers to meters.	
<b>Results</b> The first star, which was the closest to the earth, measured to be 0.9398 meters; however, when I used the parallax equation the answer was 0.87122 meters. The second star I measured, which was the fourth star, had an exact measurement of 2.921, but the parallax calculation occurred to be 3.302 meters. The seventh star was precisely 4.9276 meters away from the earth; nonetheless, the response came about 4.28752 meters, when doing the parallax equation. The last star I measured was 5.5372 meters. When I calculated the star with the parallax equation the result was 3.556.	
<b>Conclusions/Discussion</b> The experiment supported my hypothesis, even though I did not come up with the correct answers. The first star had the smallest difference in numbers with 0.06858 meters. The difference of the measurements grew as I measured each star further and further away. The eighth star had the biggest difference of 1.9812 meters.	
<b>Summary Statement</b> My project is about the calculation of parallax, and how accurate it is when determining the distance from the earth to the stars.	
<b>Help Received</b> Father helped set up equipment.	