



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

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| <b>Name(s)</b><br><b>Jeff S. Compton</b>   | <b>Project Number</b><br><b>J0607</b> |
| <b>Project Title</b><br><b>Understanding Estimation</b>  |                                       |
| <b>Abstract</b><br><b>Objectives/Goals</b><br>Estimation skills are important in everyday life, such as when predicting how many bags of groceries will fit in the truck of a car, or detecting computational errors. However, little is known about estimation, such as whether people can improve with practice. The goal of this project is to learn more about estimation skills.<br><b>Methods/Materials</b><br>A total of 60 participants had 24 trials each in which they were shown cards and asked to estimate how many measuring units would fit along a line. The trials differed in the shapes of the units and the sizes of lines. Half of the participants were randomly assigned to a condition in which they received feedback following the first half of the trials. After making the estimates, participants were asked several questions, such as whether had attended any college math classes.<br><b>Results</b><br>Results showed that participants were much more likely to underestimate than to overestimate, that they improved with feedback, and that participants with college math were more successful. The appearance of the units affected estimation: participants did better when the units were larger, and when they were circles. Finally, participants were not good at predicting the accuracy of their estimates.<br><b>Conclusions/Discussion</b><br>This research suggests that people tend to underestimate size, and that feedback can help improve performance. This research also suggests that what an estimation task looks like can affect the results, and that how confident people are might not be a good guide to how well they perform in a task. |                                       |
| <b>Summary Statement</b><br>I investigated estimation skills by asking people how many measuring units would fit along lines of different sizes, to examine biases in estimation, the effects of performance feedback, and the relation between accuracy and confidence.   |                                       |
| <b>Help Received</b><br>My parents helped find articles about estimation and helped with data analysis and proofreading. My friend Jennie Jones and my sister Alison helped me collect the data. Mary Sue Compton, my grandmother, helped me assemble the poster.  |                                       |