



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Catherine M. Troja	Project Number J0337
Project Title No Shortcut to Success: Studying Material Retention	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective was to discover whether or not retention of information is affected by the period of time between the study of material and sleep.</p> <p>Methods/Materials Fifty-five eighth grade students between the ages of 12 and 14 participated in this study. They were supplied with one page of information concerning the history of Hasbro Inc. and a designated study time, either up to 2 hours before sleep or right before sleep. All participants were directed to study for 15 minutes at their designated time in an upright position at a desk/table. The next morning, all students participating in the study were given the same 8-question multiple-choice test. This procedure was then repeated with a different set of material and another 8-question multiple-choice test on that material.</p> <p>Results I was presented with mixed results once the testing was complete. Twenty-nine participants did better when they studied 2 hours before sleep, while 17 did better when they studied right before sleep, and 9 participants got the same score on both tests. Test One's average test score for the participants who studied up to 2 hours before sleep was 74%, while the average test score for the participants who studied right before sleep was 73%, a difference of only 1%. For Test 2, the average test score for the participants who studied up to two hours before sleep was 56%, while the average test score for the participants who studied right before sleep was 69%, a difference of 13%.</p> <p>Conclusions/Discussion The number of people who did better studying 2 hours before sleep is significantly higher than that of those who did better studying right before sleep. The difference between the average test scores for Test 2 are just as different from one and other, and these averages prove the opposite: that students who study right before sleep will remember the material better the next morning than if they were to study earlier in the evening. Because of this contradiction, no solid conclusion can be drawn from this data. I found that the time of day at which material is studied is fairly irrelevant, and that the important thing when dealing with material retention is that the material is studied at all. The time of day at which each student is prepared to learn is the key factor in material retention, and this is different for each individual.</p>	
Summary Statement The problem investigated in this experiment is the effect sleep has on the retention of information.	
Help Received	