# CALIFORNIA STATE SCIENCE FAIR
## 2007 PROJECT SUMMARY

**Name(s)**
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**Project Number**
**S0311**

**Project Title**
## Chocolate Challenge

**Abstract**

**Objectives/Goals**
This study looks at the effect of ingesting chocolate on the ability of its participants to perform a simple mental task, addition of single digit numbers.

**Methods/Materials**
Three test groups were studied, children in first grade, adolescents in ninth grade and adults 25 to 60 years old. Participants were tested before and after consuming a commercial chocolate product, sugar or blank control.Blood Preassure and pulse were also monitored.

**Results**
The average first grader completed 4.2 more problems in a minute and got 4.55 more correct, after eating chocolate versus completing 1.6 fewer problems after the sugar solution. Freshman decreased by 0.1 in the number of problems they completed and decreased the number of problems correct by 0.2 after consuming chocolate. Freshman completed 3 more problems and got 2.2 more correct after receiving the sugar solution. After eating chocolate the average adult completed 1.75 more problems in a minute and got 1.4 more correct, but after consuming the sugar solution they completed an average of 2.8 more problems a minute and answered 11 more correctly. The control groups, who consumed neither chocolate nor sugar, in both first graders and adults averaged about 1.1 more problems a minute and 1.5 more correct, so there were no extremely significant difference in their scores. Freshman, on the other hand, completed 2.7 less problems but correctly answered 4.2 more in the control.

**Conclusions/Discussion**
First grade students performed significantly better after consuming chocolate than with either sugar or consuming nothing. Adolescents scored essentially the same with chocolate, while adults scored only slightly higher; both groups also performed somewhat higher with consumption. This project suggests that chocolate may positively influence the test taking abilities of young children while adolescents and adults would appear to have little to no expected improvement.

**Summary Statement**
Does ingesting chocolate influence human ability to perform a simple mental task.

**Help Received**
Teachers and mentors helped edit report. Parents helped with board design.