# CALIFORNIA STATE SCIENCE FAIR
## 2002 PROJECT SUMMARY

**Name(s)**
Edward G. Schloss, Jr.

**Project Number**
**J1434**

**Project Title**
# The Effects of Different Food Colorings on Tenebrio molitors (Mealworms)

**Abstract**

**Objectives/Goals**
The objective of my project is to determine how five food dyes, commonly used in consumer products, will affect the physiological growth, development, and death rate of Tenebrio Molitors.

**Methods/Materials**
An experimental design method was used to randomly choose ninety mealworms and divide them into 6 groups. Each individual mealworm was placed in a cup with dye added to its food. Daily observations were done for 26 days (Exoskeletal sheds, pupas, death). Every other day they were measured for length and weight ( O#Haus digital balance scale). Apples were added for moisture every 3rd day and food/food coloring was changed every 5th day.

**Results**
The control group which was fed no food coloring had the best results with a death rate of only 6%. The one death was on the 26th and final day of testing. The red dye group, which had infamous chemicals such as Red 40 and Red 3, was found to be the most detrimental to the mealworms with a death rate of 47%. The second highest was the mixed dye group with 33% death rate. Green and yellow tied for the 2nd lowest death rate, followed by the blue dye.

**Conclusions/Discussion**
My conclusion is that food colorings used in consumer food products can be detrimental to the growth, development and death rate of mealworms. Standard deviations, Standard errors and Confidence Intervals were calculated to test data reliability.

**Summary Statement**
My project is testing whether different food colorings added to mealworms' diets are detrimental to their growth, development and death rate.

**Help Received**
Mother helped prepare food for the mealworms; Math teacher helped explain reliability tests; brother helped cut out board.