



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Roger A. Billingsley	Project Number 22626
Project Title Probing the Impact of Man's Genetic Manipulation via Computer Modeling	
Abstract Objectives/Goals The objective was to create a computer model to probe the consequences of a recessive, sex-linked deleterious or lethal gene being introduced into a population. Methods/Materials Developed a computer model using the IBasic program on a Dell laptop computer. Model assumed the simultaneous introduction of seven fruit flies with a recessive, sex-linked lethal gene into an uncontrolled population. Modeled ten independent accidental introductions. Model was used to determine whether gene would survive at a significant rate after nine generations. Results Three out of ten times, the fruit flies with the gene were killed off during the first generation, eliminating it from the population. In the other seven runs of the model, the gene had survived and was present in a large percent of the population. The number of fruit flies with the gene after nine generations ranged from fifty thousand to one-hundred sixty thousand. Conclusions/Discussion The gene will decimate the fruit fly population seventy percent of the time if it occurs in seven fruit flies simultaneously. However, the odds of seven fruit flies receiving this mutation at the same time are extremely low without genetic interference. It is plausible that, because of genetic manipulation, entire populations may be exterminated.	
Summary Statement The project is a risk assessment of a lethal gene accidentally introduced by genetic engineering.	
Help Received No help received.	