



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Robert Markey; Sean Shanahan	Project Number S0520
Project Title Recipe for Disaster	
Abstract Objectives/Goals The objective is to find the the mixture of black powder that yields the strongest reaction. Methods/Materials Potassium Nitrate, sulful and charcoal were purchased. Pestal, mortar, and saftey equipment were borrowed form our high school science lab. Different ratios of the chemicals were used to make mixtures of black powder and forced to react. Reaction yield was measured by reaction time, reaction height and distance, as well as unreacted pieces. Results The black powder mixture with the ratio of 6:4:1 of potassium nitrate, sulfur, and charcoal respectivley, was found to have the greatest reaction. The mixture with a ratio of 6:4:3 was found to have the fastest reactionm time, but had the most limited reaction distance. the other two mixtures provided no results to indicate their reactions as stronger than either the 6:4:1 or 6:4:3 ratios. Conclusions/Discussion All four mixtures reacted succesfully, however; the mixture with a 6:4:1 ratio clearly and consistently had a stronger, larger and longer lasting reaction. It produced a larger area of reaction over a larger time giving conclusivly showing that it had the strongest reaction out of all of our test samples.	
Summary Statement Our project was to determine what mixture of chemicals in black powder yielded the strongest reaction.	
Help Received Used lab equipment from Willits High School under supervision of Mr. Kirkpatrick	