



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Marshall C. Henry	Project Number J0915
Project Title How Can We Help Prevent Diseases from Being Spread Far and Wide?	
Abstract Objectives/Goals Germs spread easily when people sneeze or cough and they do not cover their mouth. Because of these traveling germs, colds and viruses spread quickly throughout schools and into the community. I am hoping my project will prove that the elbow will catch at least twice as many germs as a single hand would and one third as many germs as two hands would. If we use our elbows as the barrier when we sneeze or cough, we can stop germs from being spread so far and wide. Methods/Materials A funnel was used to put ¼ cup confetti into four, separate, deflated balloons. A tire pump was used to blow up the four balloons. A 6x6 ft. piece of paper, which was marked with a black pen in one-foot radiuses from minus one foot to five feet, was used to show the distances that the confetti fell when each balloon was popped with a sharp pin. The experiment was performed four times using: ·no hands in front of a balloon, ·one hand in front of a balloon, ·two hands in front of a balloon, ·the inside of an elbow in front of a balloon when they were popped. In each of these experiments, the number of confetti pieces in each one-foot circle of radius from the minus-one-foot radius out to the five-foot radius was counted and recorded on a graph. Results The inside of the elbow kept 89% of the confetti within the plus/minus one-foot radius, while two hands held 78% of the confetti within the plus/minus one-foot radius. This is only a 13% difference. A one-handed barrier kept only 61% of the confetti within the plus/minus one-foot radius. This is a 28% decrease in confetti compared to the elbow. Finally, when no barrier was used, 47% of the confetti still stayed within the plus/minus one-foot radius, just under half of the amount using the inside of the elbow as a barrier. The traveling distance beyond the one-foot radius decreased when using the inside of the elbow, while more confetti pieces were blown beyond the one-foot radius when using two hands, one hand, and no barrier at all. Conclusions/Discussion I did not prove my hypothesis that twice as many germs would be prevented from spreading when comparing the elbow and the two-handed barrier. I proved that the inside of the elbow is 13% more effective than two hands, 28% more effective than one hand, and 47% more effective than no barrier in preventing germs from spreading.	
Summary Statement My project shows which barrier (hand or elbow) most effectively prevents germs from spreading.	
Help Received My mom helped me count confetti and create a graph from the data I collected; my sister held balloons for me; my family prayed for me.	