



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Cutter Coryell; Clay Evans	Project Number J1508
Project Title Ringing Saturn	
Abstract Objectives/Goals Our objective was to find out if Saturn's moons caused the gaps in Saturn's rings. Methods/Materials To test this hypothesis, we ran two simulations: one including moons, and one without them. After we simulated 25 years in each trial, we recorded the positions of the particles. Results The results show that in the moon test, particles form large gaps near where the moons are. In the test without moons, there weren't as extreme gaps, but there were some unexpected narrow ones further out. Also, in the moon test, a large percentage of the particles were jettisoned past the distance where we stopped recording, whereas in the test without moons, no particles passed that distance Conclusions/Discussion Our results show that gaps form in the cloud of particles near where the moons are, if there are moons. This shows that our hypothesis was correct; Saturn's moons did cause noticeable divisions in the particle cloud.	
Summary Statement Our project focused on how particles in orbit around Saturn react to the gravitation of Saturn's moons.	
Help Received Cutter's dad provided a fast computer and Matlab simulation software. He also helped us learn how to program in Matlab.	