



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Cooper A. Drain	Project Number 34784
Project Title Acceleration vs. Cell Regeneration	
Abstract Objectives/Goals The objective is to see how acceleration, G-forces, affect the cellular regeneration of a fresh water planarian. Methods/Materials 60 planarians were divided into two groups of thirty: a Flight Group and a Control Group. The planarians were then feed and cut in half perpendicular at the midpoint. The Flight Group was taken to a launch site and launched with an E30-7t Arotech engine. The planarians were then taken home; both groups were measured every day for two weeks and their regrowth was recorded. Results The Flight Group grew at an average daily rate of 0.23 mm a day while the Control Group grew at an average rate of 0.16 mm a day. The Flight Group also had 8 planarians grow back to at least their original size while the Control Group had only 3 grow back to their original size. Conclusions/Discussion The Flight Group grew faster than the Control Group did. These results completely rejected my hypothesis and contradicted all the research I conducted. This may be because I was not able to induce the planarians to the G-forces long enough to damage the cells. The research I conducted states that it is not only the amount of the G-forces, but the time spent under the stress of those G-forces that causes cellular damage.	
Summary Statement How does acceleration affect the cell regeneration rate of fresh water planarian.	
Help Received Mom helped revise paperwork; Dad built payload stopper; Ms. Fisher showed how to cut planarian; Mr. Jovero built the rocket; ROCstock organized launch.	