



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

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Project Title The Science of Paper Airplane Flight	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals We wanted to determine which class of paper airplanes, Darts, or Gliders, performs better. We predicted that darts would fly farther, because their streamlined design is more adept to fly propelled by thrust. We thought that gliders would remain aloft longer, because their wings provide more lift, the force of flight that causes airplanes to rise. We defined longer and farther flights as the best performance.</p> <p>Methods/Materials We launched 6 planes, 3 darts and 3 gliders. We used a launcher, employing a rubber band pulled into tension to launch each plane 12 times in a warehouse with no wind or man-made air currents. To measure flight duration, we started a stopwatch as the plane was launched and stopped it as the plane touched the ground. We measured the distance from the launch site to the final resting place of the plane as the flight distance, regardless of whether the plane circled or looped. To maximize the performance of each class, we launched the gliders at a quarter the thrust of the darts.</p> <p>Results Our results showed that we were partly correct; darts did travel farther. Yet as it turned out, gliders did not remain aloft as long as darts. The dart's average distance was 7.5 feet longer than the glider's and the glider's average flight duration was .04 seconds shorter than the gliders.</p> <p>Conclusions/Discussion We believe the planes flew the way they flew because of the launcher we used to propel the planes into flight. The rubber band used in the launcher provided a "raw" and uncontrolled thrust the gliders could not handle. The Darts could fly with more thrust because their streamlined design eliminates drag, yet the wide winged/nosed gliders were not able to fly because of all the drag created by their wings. If we conduct further testing, we will test the flight of paper airplanes thrown versus being launched, to determine which source of power is a better way of launching paper airplanes.</p>	
Summary Statement Our experiment tested the performance of two classes of paper airplanes, darts and gliders, to see which class functions better; has longer flight distance and flight duration.	
Help Received Feedback from local Science Fair Judges; assistance with graph creation	