



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> <b>James S. Kok</b>	<b>Project Number</b>  36007
<b>Project Title</b> <b>How to Hide an Airplane: A Study of Radar Cross Section, Year 2</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To determine why certain shapes are used in aircraft and which radar systems perform the best in detecting these aircraft.</p> <p><b>Methods/Materials</b> Black box, 2 LED Lights, LUX meter, shapes and 3 aircraft all white</p> <p><b>Results</b> Sphere shape provided most light reduction compared to the control, wedge provided the least. Wedge shape provided most reduction when compared to corresponding 2-D cross section, cylinder performed the worst. F-22 had the lowest RCS reading on monostatic test, A-10 had the highest. A-10 had lowest RCS reading on bistatic/multistatic test, F-22 had the worst.</p> <p><b>Conclusions/Discussion</b> In the 1st test the sphere performed the best due to its rounded shape design reflecting the light all in random direction. In the 2nd test the wedge performed the best by reflecting the light in a 2 uniform directions. The F-22 performed the best in the monostatic radar test due to its curved stealthy design. The A-10 performed the best in the bistatic/multistatic test due to its small compact design.</p>	
<b>Summary Statement</b> This project was made to determine which geometrical shapes and modern aircraft have the lowest radar cross section reading when compared to a various radar systems.	
<b>Help Received</b> Mark Grubb (Instructor), Debbie Lewis (Instructor)	