



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Philip A. Potvin	Project Number J0123
Project Title The Aerodynamics of the Wing	
Objectives/Goals For my science fair I am doing aerodynamics of the wing. I thought of this topic when I was flying back to LA from Indianapolis. I saw through the window of the plane, the movements of the wing and I was curious. My hypothesis is the aerodynamics of different wings creates the same air patterns.	
Abstract Methods/Materials I am looking for the different wind patterns at the end of three different types of wings. I am going to test 3 different airplane wings with my dad. My father and I will build these 3 different wings together or order them of the internet. (We are going to use F-22 wings, B-747/A-380 wings, and tradition biplane or triplane wings) Then my dad will help me build a wind tunnel to test the wings in. (The wind tunnel will be 2 ft by 4 ft by 2 ft. The size will vary on the materials available.) In order to see what the air is doing I will create fog to see the air patterns. I will also record the observations and compare them. I will do this by taking pictures & videotaping. We will watch the footage after the tests.	
Results The results of my experiment are that for each wind speed there is more of a certain type of pattern for different wings. There are more many more vortices for a high wind speed than a slower wind speed. And there are fewer curves at a higher wind speed than at a lower wind speed.	
Conclusions/Discussion What I learned from my data is that different wings do create different wind patterns or do not create wind patterns at all like with the F-117 Night Hawk which barely caused any wind activity. The P-40, on the other hand created many vortices and ripples especially at medium and high wind speeds. My hypothesis was wrong because different planes are designed with different aerodynamics to suit their needs.	
Summary Statement Observations of turbulence patterns at the trailing edge of wings	
Help Received Dad helped build wind tunnel. Mom helped type and check the final papers.	