CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
J1818

Project Title
Stealthy Shapes

Abstract

Objectives/Goals
The objective is to determine which 3-D geometric shape (cylinder, crumpled cylinder, W, or V), reflects the least light and hence is the stealthiest, and test the effect of different colored paper (white, green and gold), for each shape on the reflectivity of light and stealthiness.

Methods/Materials
I used a flashlight, a lux meter, and white, green, and gold paper to determine how much light is reflected back by each shape and how stealthy it is.
First, I made 4 shapes (cylinder, crumpled cylinder, W and V) out of all of the different colors of paper. Then I put them in the box at three different distances and turned on the flashlight for each different shape, color, and distance and recorded the data found from the lux meter and analyzed it.

Results
In all the distances and colors of paper that I tested, the cylinder and the white paper reflected the most light and therefore was the least stealthy, and the V-shape and the green paper reflected the least light and therefore was the stealthiest.

Conclusions/Discussion
My conclusion is that the cylinder and the white colored paper was least stealthy, and the V-shape and the green colored paper was most stealthy.

This occurred because the V-shape scattered the light behind itself and away from the lux meter, and therefore reflected the least amount of light and was most stealthy. Also, the green color paper absorbed the most light, reflected the least light and was the stealthiest.

Summary Statement
In my project , I tested the reflectivity of light with different shapes made out of different colored paper and its correlation with stealth technology being used in military aircrafts.

Help Received
Dad helped buy the materials and construct the test box. Dad helped glue the flashlight and luxmeter.