CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
J0810

Project Title
Sand Reflectance: Does Beach Sand Reflect More Light than Desert Sand?

Abstract

Objectives/Goals
The problem/purpose of this project is to test which location#s sand reflects more light, beach or desert. I figured this out by using a spectrometer to measure the light reflectance of all the beach and desert sand samples.

Methods/Materials
1. Find five beaches and three desert sand dunes (make sure none of the locations are in state parks).
2. Collect three sand samples from each location.
3. Using a spectrometer find the light reflectance for all the colors and energy (infrared) for each sample.
4. Chart these numbers.
5. Graph the percentages of light reflected back for each color of each sample.
6. Find the average light reflectance for the three samples of each site.
7. Find the average for beach and desert samples and graph the results.
8. Compare and analyze to see if hypothesis is supported.

Results
After finding the overall beach desert averages and comparing them to my control, I got my answer. The beach sand was brighter than the desert sand and less bright then the control. The desert sand was less bright than the beach sand and less bright than the control. I also compared the averages for each location to the Carmel Beach average (the control).

Conclusions/Discussion
In conclusion, my data supported my hypothesis. This may be because the minerals that make up sand are different by the ocean than they are in the desert. Plus, sand dunes are created by wind, and beaches are created by water, so maybe the process affects the separation of dark minerals and light minerals, but I would have to do further research on this topic.

The bottom line is, in my study, beach sand reflected more light than desert sand.

Summary Statement
The purpose of this project is to test which location#s sand reflects more light, beach sand or desert sand.

Help Received
My dad Jeff Tolhurst and his girlfriend Ginger Rohlen helped collect sand samples; my grandmother Charlotte Tolhurst drove me to my beach sample locations; my sister Courtney Tolhurst helped take photos; my dad helped record data and type parts of my board.