CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)
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Project Number
J1922

Project Title
The Effectiveness of Physical Sunblocks Compared to Chemical Sunscreens

Abstract

Objectives/Goals
The objective of this study is to identify whether physical sunblock is more effective than chemical sunscreen in reducing ultraviolet ray exposure.

Methods/Materials
The materials utilized in this experiment include ultraviolet detecting beads to measure the effectiveness of the products in reducing ultraviolet ray exposure on the beads, an ultraviolet ray detecting device to measure the UV index, four boxes of identical size to place the bead inside, sheets of acrylic plastic to apply the sun protecting products on, two chemical sunscreens, two physical sunblocks, one teaspoon measuring spoon, four timers, and one camera to capture the shade of the ultraviolet detecting beads to compare to the bead shade scale.

Results
The chemical sunscreens resulted in an average bead shade lower than the physical sunblocks. As a result, the chemical sunscreens proved to be more effective than the physical sunblocks in reducing ultraviolet ray exposure.

Conclusions/Discussion
The results of this experiment provided important insight on the most effective sun protecting product. Previous studies have shown that physical sunblocks are healthier for the epidermis than chemical sunscreens, but this experiment concluded that physical sunblocks will not protect people from the ultraviolet rays of the sun as well as chemical sunscreens. As a result of this experiment, people will be more knowledgeable regarding the most effective way to protect themselves from the significant repercussions of ultraviolet rays.

Summary Statement
I measured the effectiveness of physical sunblocks and chemical sunscreens and discovered that chemical sunscreens are more effective than physical sunblocks in reducing ultraviolet ray exposure.

Help Received
My parents and sister provided assistance with timer-setting and bead placement during the execution of the experiment, and Orchard Supply Hardware cut and sanded the acrylic plastic incorporated in this experiment. In addition, my teacher helped me determine what type of sun-related product to test.