

Abstract

Project Title: Ultra Violent Ultraviolet

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Skin cancer touches the lives of millions of individuals every year. Work needs to be done to help lower the number of families affected by this disease. My question focused on which sunscreen (Coppertone Sport, Banana Boat Sport, or Coppertone Kids) would best protect against ultraviolet light. I predicted that Coppertone Kids will best protect against both UVA and UVB ultraviolet light, because it contains the most zinc oxide. Since zinc oxide is an inorganic particle, it scatters ultraviolet light. Therefore, I think more zinc oxide would better protect against zinc oxide. By using the Vernier UVA/ UVB sensors I went about testing my hypothesis. After applying three different name brand sunscreens to overlays, I exposed the overlays to direct sunlight. At regular intervals I measured the amount of UVA and UVB that penetrated the sunscreen barrier. The sunscreen with the least amount of zinc oxide (Coppertone Sport) did the best at protecting against UVA rays. It let in 62.2 mW/m^2 of UVA. Coppertone Sport also did the best at protecting against UVB, letting in only 13.76 mW/m^2 of UVB. Banana Boat Sport did the worst against UVA, letting in a whopping 329 mW/m^2 . Banana Boat Sport also did second best against UVB, letting in only 14.16 mW/m^2 . Finally, Coppertone Kids-which had the most zinc oxide-did second best at protecting against both types of ultraviolet light. It let in 96.84 mW/m^2 of UVA and 14.22 mW/m^2 of UVB. My Hypothesis was not supported and in fact I discovered that the sunscreen's zinc oxide is counterproductive to UVA and UVB protection.