

Absorption of Radiant Energy by Different Colors

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Energy exists everywhere and in many different forms. This project focuses on the radiant energy absorbed by the colors red, yellow, blue, black, and white. Radiant energy is energy transmitted away from its source. To measure the amount of radiant energy absorbed by each color, colored circles with a 15.24 cm diameter were cut. Each circle was placed in the center of white construction paper with the dimensions 21.59 cm x 27.94 cm. The circles were placed vertically across a table covered with a white tablecloth. The table was placed in the shade for five minutes. The temperature of each circle was recorded using an infrared thermometer. The table was then placed in the sun and after every five minutes, the temperature of each circle was recorded using an infrared thermometer. The temperature of the surrounding area was measured using an outdoor thermometer. The amount of energy absorbed was calculated in watts using the Stephan-Boltzmann equation and then converted to photons emitted per second using a second formula. Five trials were taken for each color over a period of two days, resulting in 10 trials per color and 50 trials total. The results of this project do not completely support the hypothesis. The color white did absorb the least amount of energy and the colors red and yellow did produce an intermediate amount of energy; however, the color blue produced a greater amount of energy than the color black. Different colors could potentially be used as a source of energy to power everyday objects.