

Analyzing Evidence About Melanin and UV Light

We now know that when ultraviolet (UV) light travels through the atmosphere and reaches someone's skin, it can be absorbed by the genetic material in skin cells and cause damage that can lead to skin cancer. Luckily we have something in our skin called melanin, which provides some protection against UV light. In this lesson, you will investigate how melanin protects skin and examine evidence about melanin levels and UV light in Australia. This will allow you to make a clearer explanation of why the skin cancer rate in Australia is so high.

Unit Questions

- How does light interact with materials?
- How can the same amount of sunlight cause different rates of skin cancer?

Key Concepts

- There are different types of light that can affect a material in different ways.
- A light source can emit more than one type of light.
- Different types of light have different wavelengths.
- A material absorbs energy from some types of light and not others.

Part 1: Vocabulary- Define the following terms.

- absorb

- emit

- energy

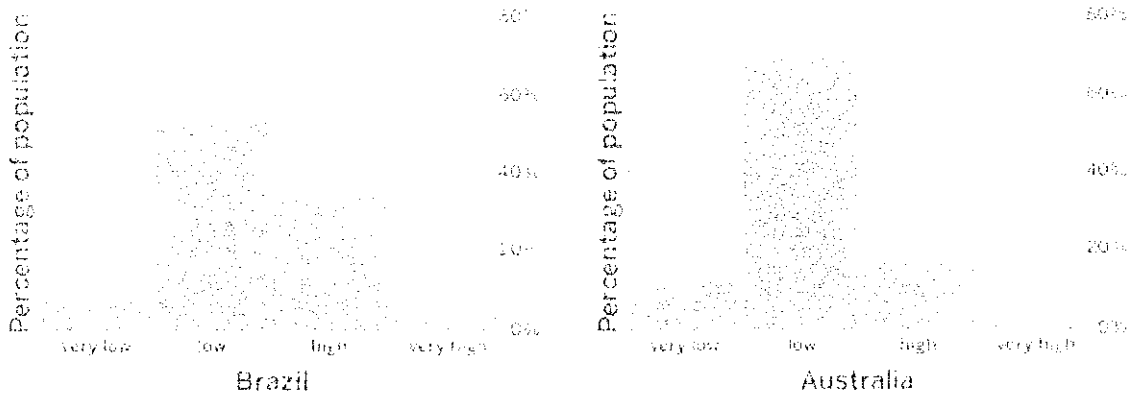
Part 2: Read the article "What Is Melanin?"

Then write an explanation of how this evidence helps answer the question: How does melanin provide protection against skin cancer? Use the following words in your explanation: absorb, energy, light.

Part 3: Skin Cancer Factors

When studying the connection between melanin levels and skin cancer risk, scientists group people by how much melanin they have in their skin cells. Below are two bar graphs, one for Australia and one for Brazil. Each bar graph shows the estimated percentage of the population with different levels of melanin. Examine this evidence and then answer the questions below.

Estimated Percentage of Populations with Each Melanin Level



1. Compare the graphs. What does the evidence show?
2. How does this evidence help explain why the skin cancer rate is higher in Australia than in Brazil, even though the two countries get the same amount of sunlight?

