STEM Challenge: UV Radiation
Story Book Science at Home Activity

What you need

- Construction paper
- Sunscreen

Preparation

Follow the instructions outlined below to participate in this STEM Challenge.

Step 1. Gather materials.

Step 2. Rub sunscreen on the palm of your hand and press palm of hand onto construction paper.

Step 3. Place construction paper in a sunny spot outside and leave it in that place for about four hours.

What to do

Observe your paper after it has been in the Sun for about four hours.

After observing the results of your experiment, brainstorm new questions to answer! What happens if you repeat the experiment but use a different sunscreen? What happens if you redo the experiment but place the piece of construction paper in a sunny spot indoors, near a window? What happens if you redo the experiment and use a different color of construction paper, or a different type of paper? The possibilities are endless!

Look at the pictures of an experiment where pieces of construction paper with a sunscreen handprint were placed directly in the Sun and in a shady area. Compare and contrast the two pieces of construction paper.

Activity modified from Sunscreen handprints activity from NASA Space Place.
What is happening?

Radiation is the movement of energy. One form of radiation is electromagnetic radiation, which can be illustrated on the electromagnetic spectrum. The electromagnetic spectrum illustrates different forms of electromagnetic radiation and their wavelengths. Some forms of electromagnetic radiation, like radio waves, travel in long waves while other forms of electromagnetic radiation, like gamma rays, travel in short waves.

Image from NASA Science.

One form of electromagnetic radiation is ultraviolet (UV) radiation. The wavelengths of UV radiation are shorter than the wavelengths of visible light! That's why UV waves cannot be seen by humans, although some animals like bumblebees are able to see them.

The Sun is a natural source of UV radiation and can emit three different UV rays: UV-A, UV-B, and UV-C. The rays that cause sunburns in humans are UV-B rays. Sunscreen can help protect our skin from overexposure to UV radiation. This is why it is recommended to wear sunscreen in all seasons: spring, summer, fall, and winter. The Sun is always out, even when it is not warm outside!

Information from The Electromagnetic Spectrum Video Series & Companion Book from NASA Science.