



UV Detecting Beads and UV Blockers

Grades K – 9

Introduction

Sunlight doesn't just contain the light we see. It also contains a light that our eyes cannot see. That light is called ultraviolet light or UV-light for short. This light is more energetic than the visible light we can see, and this extra energy can cause chemical reactions and also sunburns. There are special beads to help us detect UV-light. These beads have a special coating that causes them to change colors when exposed to UV-light. This experiment explores which products help protect our skin, eyes, and medicine from being damaged by UV-light.

CAUTION! HEALTH & SAFETY

Be Safe! Do not eat any of the materials used in this activity.

Materials

- 6 Color changing energy beads also known as UV beads (can be purchased online from Amazon)
- 1 pair of sunglasses
- Stretch Magic® beading cords or similar bracelet making material

Procedure

1. Get 6 beads and put them on a piece of the "Stretch Magic" bead cord, to make a bracelet. Since the cord is made of plastic, the only way to tie it is to put the ends of the string parallel to each other, make a loop and pull the ends through the center of the loop.
2. Take the bracelet that has not been exposed to sunlight and place it in your hand.
3. Hold a pair of sunglasses in your hand so that the lens covers the beads.
4. Walk over to a window where sun is entering the room or walk outside and observe your beads.
5. Remove the sunglasses and then observe your beads again.

Where's the Chemistry?

The UV-light causes a chemical change in the dye that is on the beads. When the UV light shines on the dye, that chemical change cause a color change. This is how the UV light is detected. There are several products that you are probably familiar with that help protect us from damaging UV-rays. The pill bottle is an excellent blocker of UV light even though you can see through the bottle. The pharmacists use these bottles because some medicines can be damaged by UV-light, so the bottle protects the medicine so that it can do its job. Another product is sunglasses. Sunglasses not only keep the bright light out of our eyes, they also protect our eyes from the damaging UV rays. Sunscreens also help block damaging UV rays so that people don't get sunburned. The sunscreens have special chemicals in them that absorb the UV light and keep it from going through your skin to prevent skin cancer.