

SUN SAFETY BEADS

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SUNSCREEN TEST

1. With all of the SPF (Sun Protection Factor) numbers available, we want to know what SPF lotion really works best at keeping out the sun's harmful UV rays.
2. Start by collecting various strengths of sunscreen (SPF 4, 15, and 30, for example). Since the UV Color-Changing Beads are very sensitive to changes in UV energy, you can use the beads to determine the blocking potential of the sunscreen.
3. Place the beads in a zipper-lock bag and apply a layer of sunscreen to the outside of the bag.
4. Use a permanent marker to write the SPF number of the sunscreen you're testing on the outside of the bag.
5. Be sure to set up one bag without any sunscreen coating for comparison purposes. The bag with no sunscreen coating will serve as the control in your experiment. Expose the beads to direct sunlight for 5 minutes and look for any changes in color.

The beads will always change color, regardless of how well the sunscreen blocks UV - the beads are very sensitive! The key is to rate the color of the beads on a scale of 1-5, with 5 showing the most color or "burning" and 1 showing the least color. The bag without any sunscreen is an automatic "5." You can also test the difference between new and old sunscreen. Sunscreen manufacturers suggest that you throw away old sunscreen because it does not block out harmful UV light. Do your tests support this claim?

LIGHT TEST

Place a handful of UV beads near a fluorescent light. Do any of the beads change color? Can you get a sunburn or a tan by sitting next to a fluorescent light?

BLACK LIGHT

"Black light" (long wave ultraviolet light) can also be used to change the color of the beads. You can purchase a black light at many specialty stores or hardware stores that have a large section of light bulbs. Steve Spangler Science also sells them. Sometimes those high intensity lights (mercury vapor) found in a gymnasium emit just enough UV light to make the beads barely change color.

CLOUDY DAY

Test to see if the beads change color on a cloudy day. If they change color, then you can see why doctors warn people to wear sunscreen even on a cloudy day. Observe how well the beads change color when exposed to sunlight at different times of the day. According to your data, what time of day does the sun give off its most intense UV light?

SUNGLASSES

Test the ability of your sunglasses to block out ultraviolet light by covering a few beads with the lens of your sunglasses. If the beads do not change color, your sunglasses block out harmful ultraviolet light from your eyes. If not, you paid too much for that UV coating!