Carolina Quick Tips®

UV Bead Bracelet

UV-sensitive beads are a novel way to teach students about the electromagnetic spectrum of energy, especially the presence of invisible light energy known as ultraviolet (UV) radiation. Students make bracelets constructed of UV beads, and then inquire into what environmental conditions will allow them to change color and detect the presence of radiation, which is invisible to the human eye.

Materials Required

Solar Energy Beads (956209)

Ribbon

Scissors

Source of UV Radiation (sun or 154683 UV Lamp)

Colored Pony Beads (optional)

Activity Procedure

1. Have each student cut a piece of ribbon long enough to loosely encircle his or her wrist, or distribute pre-cut lengths of ribbon to each student.
2. Have students thread UV beads onto their ribbon and knot it to create a bracelet. If desired, allow students to add non-UV beads to their bracelets to personalize them.
3. Have students expose their bracelets to UV light to demonstrate that the beads will change color in the presence of ultraviolet radiation.
4. Have students working in small groups form a hypothesis as to what environmental changes will allow the bracelets to change color (i.e., detect UV radiation) and what conditions might prevent such a change (i.e., block UV radiation).
5. Provide student groups with the means to test their hypotheses by altering the environmental conditions around their bracelets. Conditions and experiment possibilities include:
   - Light source: Compare the effects of sunlight, a UV lamp, an incandescent bulb, and light filtered through colored theatrical film.
   - Darkness: Place the bracelet in a shoebox under a UV lamp.
   - Moisture: Dip the bracelet in water.
   - Heat: Place the bracelet on a heating pad or other warm surface.
   - Cold: Place the bracelet on an ice pack or in ice water.

Safety

Warn students never to look directly into the sun or a UV lamp. Avoid prolonged exposure to UV radiation. Ensure that students use caution when working with scissors, or cut ribbon for each student before the activity begins. Ensure that students testing hot and cold conditions are not exposed to dangerous temperatures.

Results/Summary

UV beads are a novel and fun way to demonstrate the presence of invisible light energy in the ultraviolet range of the electromagnetic spectrum. At the end of the activity, students should have a better understanding of the electromagnetic spectrum and the nature and characteristics of visible and invisible light energy.

Additional Information

View more information, content links, and products related to this activity at www.carolina.com/takeaways.

CB813902502