

ACTIVITIES

Student Activities *continued*

- 8** Is there a change in the color of the beads? Does this indicate that the sunglasses are effective at protecting the eyes from sun damage?
- 9** Return to the classroom and ask students to define or use the vocabulary terms they have been using, and to explain their conclusion in a brief paragraph.
- 10** Let students brainstorm ideas about how the sun's power can be used to accomplish common tasks. If students don't come up with it, suggest sun tea. Let volunteers prepare the pitcher, place in the sun, and notate the time to track brewing time. Promise them samples on day two.

ASSESSMENT

Vocabulary Key

Ultraviolet light - Light invisible to the human eye because wave length is shorter. In 10-400 nm range on the light spectrum of electromagnetic radiation

Light spectrum - Range of electromagnetic radiation, part of which is visible to the human eye; this part we call light and see as colors.

Suntan - Browning of the skin as a result of exposure to sun's rays. It is the first sign of skin damage, as the skin is darkening to protect the body from the ray.

Sunburn - Red and sometimes blistered skin. The most dangerous skin damage.

Skin Cancer - Abnormal growth of cells as skin cells replicate, resulting in moles or multiple colorations, usually larger than a pencil eraser. They are asymmetrical in shape.

Basal Cell Carcinoma - Easiest to treat, 95% cure rate, but can grow deeply and allow for other kinds to develop. Small, fleshy bump.

Squamous Cell Carcinoma - Also a 95% cure rate. Red, scaly patch or nodules

Malignant Melanoma - Responsible for 75% of deaths due to skin cancer. A mole that changes shape, bleeds, or itches

Melanin - Cells in the skin that produce color of the skin

SPF - Sun Protection Factor. The number indicates how much longer you can stay in the sun than without it. Adding sunscreen does not allow you to "start over" on the same day you've already had exposure.

TEACHERS

GUIDE



SOLAR BEADS
ITEM # ASB-SERIES

LIGHT AND COLOR - COLOR

How can a bracelet demonstrate the power of the sun on the skin? When it's made of Solar Beads, students watch the sun "tan" the beads before their very eyes!

The brighter the sun, the more vividly these normally milky-white beads turn to brilliant pinks, oranges, violets, and more. Color disappears once beads are out of the sun. Beads are 9mm with a 3mm hole in the center, similar to the crafters' "pony beads".



Materials

- Light spectrum chart (easily found and printed from the internet)
- 1000 pack of beads to accommodate multiple students
- Twine for bracelets
- Sun block of various SPFs and brands
- Sandwich bags
- Sunglasses
- Vocabulary sheet
- Clear pitcher
- Water
- Several tea bags

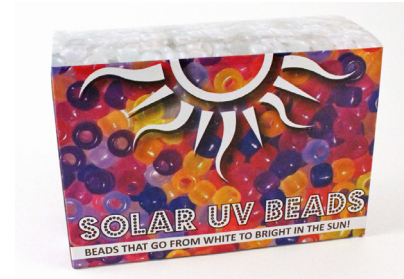
Goals & Objectives

Students will:

- improve vocabulary related to UV rays.
- identify UV light on the light spectrum.
- draw conclusions about need for and effectiveness of sunscreen.
- apply knowledge of solar power to common activities.

ACTIVITIES

- 1 Pass out spectrum sheet and vocabulary sheet to each student.
- 2 Ask: What does the sun do to or for us? (Possible answers could include light, heat, vitamins, chance to grow food, and skin cancer.)
- 3 Tell class that they will be using beads made of a material that allows them to quickly observe the powerful effects of the sun.
- 4 Have each student gather 3-5 beads, and a piece of twine for themselves. String a bracelet. (This is easiest if they tie a knot 1/3 of the way down the twine, string beads, then knot on the other side of the beads, to keep beads in place.)



- 5 Take class outside (teacher should bring the rest of the supplies out in a box) and have students walk in direct sunlight, and then in the shade. Discuss that the beads do not color so vividly with less light. Compare this to suntanning. (The brighter the sun, the more damage

possible quickly, color in beads symbolizes tanning, any tanning indicates skin's attempt to protect the body and therefore shows some damage, so any color in beads also indicates the sun has had some impact. etc.)

Note

It is always best to DO an experiment ahead of time to be able to best present it to the class.



- 6 Stand in a very shaded area. Each student should place his bracelet in a sandwich bag, then cover the outside of the bag with one kind of sunscreen. Note which SPF and brand.
- 7 In groups of 3-4 students who used different kinds of sunscreen, students 7. should stand in direct sunlight and compare the colors of the beads. Which SPF and/or brand kept the beads whiter?

Now remove the bracelets from the bag and put them under a pair of sunglasses. (Student may need to share glasses and take turns.)

continued on page 4

S T U D E N T
H A N D O U T

Student Name: _____

Vocabulary List

Define the following:

- 1 Ultraviolet light
- 2 Light spectrum
- 3 Suntan
- 4 Sunburn
- 5 Skin Cancer
- 6 Basal Cell Carcinoma
- 7 Squamous Cell Carcinoma
- 8 Malignant Melanoma
- 9 Melanin
- 10 SPF

