



# Danger At Graves Light

## Lesson Overview:

*Danger at Graves Light* is an ebook published by Children's Melanoma Prevention Foundation to introduce children to the importance of being SunAWARE and protecting their bodies from overexposure to the sun. Through the use of this book and the following lesson plans children will learn how the sun's energy is absorbed and how the sun's rays have the potential to cause sunburn and tanning of the skin. Also included is a fun SunAWARE extension that includes a craft activity and reminder based on a character from the story. This lesson plan is geared for children in Second Grade - Fourth Grade.

## Lesson Objectives:

Students will ...

- Explain how light colors versus dark colors absorb the intensity of the sun
- Demonstrate how to protect skin from changes due to the sun
- Identify the 5 action steps in the SunAWARE acronym

**Estimated Time:** 60 minutes

## Key Vocabulary:

**SunAware:** is an acronym that helps teach five easy action steps to prevent sun damage and risk for skin cancer.

A - Avoid unprotected exposure to sunlight, seek shade and never indoor tan.

W - Wear sun protective clothing

A - Apply adequate amounts of broad-spectrum sunscreen with an SPF of 30 or greater to all areas of exposed skin.

R - Routinely examine your whole body for changes in your skin

E - Educate others about the need to be SunAWARE

**UVA:** (Ultraviolet A or Aging/Tanning) rays have a long wavelength and are one type of UV rays that are emitted from the sun. This type of UV ray has the ability to pass through the atmosphere, ozone, glass, and even down to the deepest layer of our skin, the dermis.

**UVB:** (Ultraviolet B or Burning) rays have a shorter wavelength and are another UV ray that is emitted from the sun. 90% of UV rays pass through the ozone and they have the potential to damage the top layer of our skin, causing sunburns.

## **Materials and Preparation:**

### ***Teach 1:***

- Print out the *Parts of the Skin* worksheets (blanks for students and an answer sheet for instructor)
- Pencils

### ***Teach 2:***

- Two plastic water bottles (same size)
- Two balloons (deflated)
- Black paint and white paint (enough to paint one bottle each), brushes
- Heat source (lamp or sun)

### ***Teach 3:***

- Print and cut out seagull template
- Paper plates - average dinner size / white (one per student)
- Scissors, pencils, crayons

## **Introduction: (15 minutes, including 10 minutes to read the book)**

**Warm-up:** Ask students to think about what would be helpful to prepare for a day of sailing. Answers may include packing food, fuel, a map, a cell phone, a life jacket, and informing others where you plan to sail.

**Invite** students to talk about if they have ever been out on the water, sailing or fishing. Ask what the weather was like (hot, cold, windy, etc.) and to share their personal experiences as to how they best prepared for it.

**Share** ebook: *Danger At Graves Light*.

**Discuss** with students what Nancy (the Mom) did correctly to prepare for her sailing trip versus what she did not do correctly to prepare for her trip.

## **Teach 1: Parts of the Skin worksheet (10 minutes)**

**Share** with students the *Parts of the Skin* worksheet. Ask students to fill in the names of the parts of skin on the worksheet (guide them using the instructor answer sheet). As students label each section of skin, review the names of the layers and what each layer does. Ask students to color in the sun and the arrows that show how UVA and UVB rays may pass through the skin.

**Discuss** with students how sunlight is made up of two different rays: long wave ultraviolet A (UVA) and short wave ultraviolet B (UVB). UVA rays may have the potential to harm the lower layers of the skin by penetrating into the dermis (the thickest layer of skin). Skin that is not protected may tan, age faster and wrinkle. UVB rays have the potential to injure the upper layers of skin, causing an inflammatory reaction or sunburn.

A great way to remember is UVA - A for Aging and UVB - B for burning. Relate the worksheet to how Nancy's skin is affected in the story. Ask students to talk about ways to stay safe in the sun.

**Teach 2: Is the sun's energy absorbed by different colors in different ways?**  
**(20 minutes / depending on paint drying time)**

**Ask** students if Nancy prepared for her trip by wearing protective clothing what would have been a better choice: wearing dark colored clothing or light colored clothing?

**Experiment:** Take two empty plastic bottles (ex.: water bottles, soda bottles). Paint one bottle black and the other bottle white. Let paint dry. Attach a balloon to the neck of each bottle and place them in the sun or under a hot lamp. Observe the changes between the two bottles.

**Discuss** with students which balloon do you think will inflate first? Why do you think this? Which bottle will have warmer air? Why do you think it would be safer to wear light colored clothing in the summer?

**Teach 3: How did Allerton help Nancy? Can Allerton also help us to remember to be SunAWARE?**  
**(15 minutes)**

**Discuss:** that In the ebook we meet a seagull named Allerton. Allerton is a smart bird who helps Nancy by bringing her clothes to cover up, as well as leading Gran and Mr. Parker to Nancy. Allerton was a smart seagull in the story. How smart are seagulls in real life?

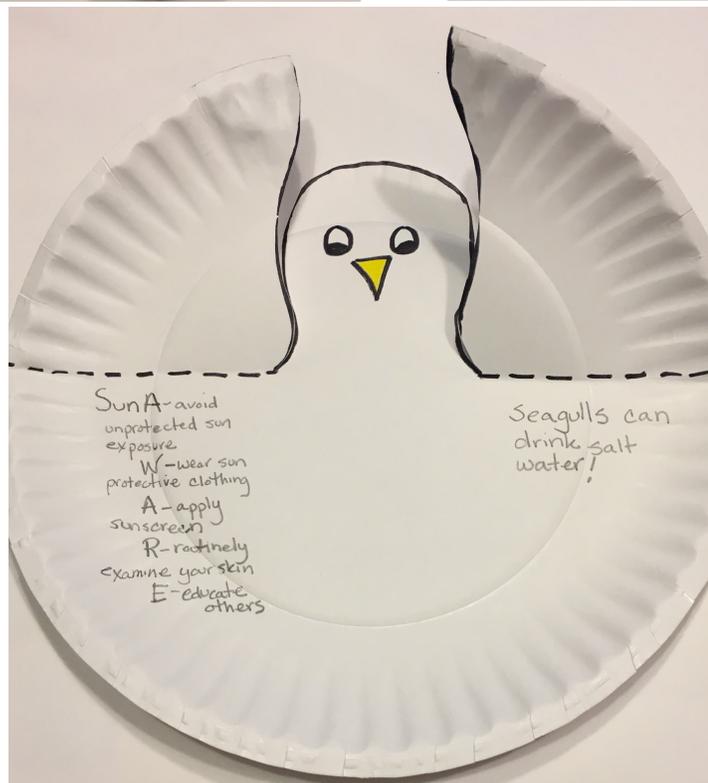
**Share** the seagull facts (below) with students.

Did you know?

- That seagulls mate for life and may live up to 15 years in the wild.
- Seagulls have strong bodies. Their bodies are mostly covered in white feathers, but their wingtips may be black or gray. Their beaks are slightly hooked and usually yellow in color.
- Seagulls are one of the few animals that are able to drink salt water. They have special glands over their eyes that help eliminate the salt from their bodies.
- Seagulls talk to each other by using sounds and body language.
- Seagulls build nests in soft sand. They often work together to build their nests.
- Seagulls are very smart as they have been observed using food (bread crumbs for example) to attract fish to the surface of the water. Seagulls also use their feet to create a rain-like sound that attracts earthworms to the surface of the ground. Seagulls teach their babies these hunting techniques!

**Ask** students how they think birds protect themselves from different kinds of weather. Discuss how feathers protect the skin of the bird from the sun. Birds will spread their wings (and their feather tracks) to allow the heat trapped on their skin to cool. Birds, as well as other animals, will often take sand baths to help keep cool (as well as to clean away any pesky mites). **Ask** students what they have to protect themselves from the sun and what they can use to provide added protection.

**Give** students each a paper plate and trace the template (illustrate with your pre-printed and pre cut example). Trace the template and then cut the side of the wings and the head out of the paper plate. Fold the wings down on the dashed line. Color in the face and add legs (optional) with crayons or markers. Under one wing record your favorite seagull fact. Under the other wing list the SunAWARE acronym and action steps.



**Closing:** (5 minutes)

**Wrap-Up:** You may use the following questions to help assess your students understanding of the lesson objectives.

**Ask:**

**What is the difference between UVA and UVB?** UVA rays are longwave ultraviolet rays that have the potential to pass through to the deepest layer of skin. UVB rays are shortwave ultraviolet rays that may effect the top layer of our skin.

**What skin changes have you experienced from the sun?** Our skin may change through sunburn, early aging and the development of wrinkles.

**What colors absorb the energy from the sun more?** All wavelengths from the sun are absorbed by darker colors and change into heat. Light colors reflect the wavelengths and therefore do not change into heat.

**What are some of the ways in which we may protect our skin?** We protect our skin by staying out of the sun, wearing protective clothing and gear, and applying sunscreen on a regular basis.

**What does it mean to be SunAWARE?** To be SunAWARE means that we Avoid exposure to the sun, Wear protective clothing, Apply sunscreen, Routinely check our bodies for changes, and Educate others about sun safety.

**Parts of Skin Worksheet**  
**(to be used with Danger at Graves Light)**

Name: \_\_\_\_\_

Label the parts of the skin as well as which arrow represents UVA and UVB rays.

