

# How the Sun Affects life on Earth

## STEAM Lesson



### **Suggested book titles:**

**The Sun, Our Nearest Star** by Franklyn Branley

**Sun Up Sun Down** by Gail Gibbons

**Lesson duration:** Day #1: 90 minutes with Read Aloud & Day #2: 60 minutes

**Suggested Age Range:** 4-12

**STEM Activity:** Our sun gives us light, heat, ultra violet (UV) radiation

- Purchase UV sensitive beads from any online source [See resource and materials list below]
- \*Optional: purchase split key rings to attach start of lanyard or plastic jewelry wire
- Use UV sensitive beads to create a simple lanyard style keychain or animal, the area not covered by one sunglass lens will change color, but not the “protected” area (this could also be done with a small amount of sunscreen on just one small area of the keychain)
- Over several visits/days, put the keychain in direct sunlight, shade and cloudy weather and record results
- Optional: Experiment with different fabrics covering the beads to test how well different fabrics (especially bathing suit fabrics) protect the skin from sunburn

**Objective:** Children will demonstrate and explain how technology (UV film on sunglasses and/or sunscreen) can support and improve quality of life for humans on Earth.

**Supplies/Resources/Tech:** \*Parent volunteers to assist Days #1 and Day #2

- sunglass lenses from donated whole or broken/scratched sunglasses
- sunscreen, one bottle of 50+ (you could also have an extension with a variety of strengths of sunscreen)
- lightly colored construction paper half sheets
- \*UV sensitive beads (as low as \$16.17 for 1,000 beads)
  - <https://www.amazon.com/Ajax-Scientific-Beads-Pack-1000/dp/B00EPQLNGA>
- lanyard cording or plastic jewelry wire
- split key rings
  - [19mm Kids Arts and Crafts Supplies \(Pack of 100\)](#)
- bead Animal Tutorials on YouTube for a variety of design styles and How-To-Make
  - preview these to be sure they are simple enough to create in the time you have allotted
- Laptops, Chrome Books, iPads, tablets... 10-12 devices
- tubs to store supplies, organize and put on tables where children are working
- scissors
- clear tape
- colored pencils or markers, if children want to plan their animal design
- pencils, pens
- \*Optional: clipboards, if already on hand
- paper towels
- lined and blank paper to record observations and create a diagram

**Read Aloud: Chosen nonfiction sun book:** stop to discuss at talking points and point out any parts that will support understanding of the story/informational text and/or the chosen STEM challenges

**Introduction:** Our sun has some very important effects on life on Earth. What are some things you know now about the sun and how it helps plants, animals and people? Have children turn-and-tell-a-friend. Have partnerships share ideas. Next, ask children and families what are some things you know about how the sun might be a problem or cause harm or hurts to people on Earth.

**Children Ask Questions:** Encourage children to ask questions. Answer procedure questions directly but not creating questions. Record these, if able, to revisit later. (Some questions may be answered today and others another visit. You might have to read to find out an answer to your questions. You might look on the Internet or find a YouTube video answer. Some questions just can't be answered and that's okay.)

**Science Essential Question:** "How can we protect our bodies from the sun's dangerous, invisible radiation?" Have children turn-and-tell-a-friend. Have partnerships share ideas. Do not answer any questions or give answers. Be open to any preconceptions. Try not to show any facial expressions or body language that might "tell" a child they have a misconception.

**Day #1 Guided Practice:** Have children create a UV bead keychain

- Have one computer/iPad/Chrome Book at several tables. Have a YouTube directions tutorial ready to watch on these devices. Label each table with the choice. Examples: lizard, ladybug, butterfly, turtle, dog, penguin, alligator,...
- Demonstrate how to start a bead animal keychain and the "trick" of sliding the cording in a second time to hold the beads in place. Avoid showing a completed animal keychain as children may copy just the one sample.
- Have children choose a design and work at that table.
- Pass out tubs of supplies.
- Circulate and support children, as needed to create their chosen animals
- At the end of the session, have children store their bead animals in a safe place with their names, until next visit.

**End of Day #1**

**Day #2 Independent Practice:**

- Review read aloud, with a picture walk, and have children describe what they remember about the sun and life on Earth.
- Share and discuss EPA Mini Poster about sun safety. [See link below.]
- Have children complete UV sensitive beaded animal keychain and take their animal outside to designated areas with a supervising volunteer. \*Note: baskets or tubs of supplies should also be at the designated areas - paper, pencils, clipboards, sunglass lenses, sunscreen, paper towels,
- Have children set up their sunlight investigation in bright, direct sunlight with their animal. Have children place a sunglass lens over a part of their animal and/or put a small amount of sunscreen on just one small area.
- Children should draw their animal as a short amount of time passes.
- Encourage children to observe closely and talk about what they notice.
- Have children draw and write what they are noticing on blank and/or lined paper as a diagram or picture and notes.
- After all children have had a chance to expose their UV sensitive animals to sunlight and recorded their findings, return to the large group meeting area.

**Children answer questions posed, as able or researched:** Return to the list of questions children asked and have children answer, as able.

**Children Share/Present:** Have children share what they observed and learned. Ask the Science Essential Question, again. Have children turn-and-tell-a-friend. If time, have partnerships share ideas, or some partnerships share. Children describe how the sunglass lenses and/or sunscreen affected their animal and why sunglasses and sunscreen are important for the health and safety of humans. (Why don't animals need sunscreen? They have fur to keep sunlight from burning their skin.)

- Have everyone applaud for each presenter.
  - **Elaboration:** If time, show a sunlight safety video. [See suggested links below.]

## End of Day #2

- **Extension:** Design something that can keep people “safe” from sunlight. “Sell it!” Create a “commercial” or skit. If it already exists how will you make it better?

[EPA Sun Safety Mini Poster and at-home activities](#)

*George the Sun Safe Superstar* by Kathryn Clifford

[YouTube Video](#) 4:35

[Book from Amazon](#)

[Book Copy pdf](#)

[Despicable Me 2 Sun Safety Campaign](#) with Olympic Gold Medalist Stephanie Rice

YouTube Video 3:07

*\*Note: one more lesson is in this set, that uses the UV sensitive critter keychain...*

Developed by: Laura Kitagawa. (January 2016). Made for the Shade. *Science & Children*. NSTA: Arlington, VA.

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