Lesson 4: Be Sun Smart

Snapshot

Moving outside, this lesson explores how we both need the sun and need to protect ourselves from its rays.

Preparation and Materials:

- Posters 1–3, Take-Home Talk
- Flip chart and markers
- Black or white board
- Large sheets of paper for each child to make a poster
- Markers or crayons
- Print a dozen different maps of heat, UV, and humidity from different locations on the same day from online weather sites

Note: If it's sunny out, think about teaching some or all of this lesson outside, but be sure to practice the sun smarts you will be teaching about!

Suggested Giveaways: UV bracelets that change color when the UV rays are at high levels, sunscreen, sun visors or hats that can be decorated, anything to protect from the sun.

Objectives—Students will be able to:

- define *sunscreen*, *sunburn*, *vitamin D*, and *ultraviolet (UV) light*;
- explain what the sun is;
- list three things which the sun provides that we need; and
- list three ways that they can protect themselves from too much sun.

Vocabulary: sunscreen, sunburn, vitamin D, and ultraviolet (UV) light

Procedure:

1. Introduction *(8 minutes)*
   Optional Activity: Sun Sing Off *(10–20 minutes)*
2. Defining Terms and Sun Smarts *(20 minutes)*
   Optional Activity: Heat and UV Around the Country *(10–15 minutes)*
   Optional Activity: Group Work on Animal Sunscreen *(10–15 minutes)*
   Optional Activity: Sun Smarts Posters *(10–15 minutes)*
3. Close and Take-Home Talk *(8 minutes)*

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Lesson 4: Be Sun Smart

1. Introduction and the Earth's Orbit

(8 minutes)

Review

Ask several students to share something that they remember from the previous lesson.

Prompts: What did you learn that you didn't know before? What did we talk about that you already knew? What surprised you from our last lesson? What are some of the new words you learned from our last lesson? What can you do to positively impact the issue that we learned about?

Do Ask

*[Show **Poster #1** (four photos—extreme close-up images of the sun or sun flares).]* What does this look like? What do you see? Who knows what this is? *[Take some time with the photos. This may be the first time that some of the kids have seen images of the sun this close.]*

Explain

This is our sun. Have you ever seen a picture of the sun like this? We usually see the sun drawn as a big yellow ball. These photos were taken by NASA.

Ask

What is the sun? The sun is the star at the center of our Solar System. The sun is 109 times larger than the Earth and primarily consists of hydrogen and helium (gases).

Explain

Think of the sun as a humongous power plant that is throwing off heat energy. We feel the heat energy of the sun when we walk outside, and it's hot out even though it is 93 million miles away from the Earth because most of the space between the Earth and the sun is empty, which allows the sun's energy to reach us easily.

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1. Introduction and the Earth's Orbit *(continued – page 2)*

Ask

How hot does the temperature get in *[insert your city name]* at its hottest?

Prompts: In August, what is the temperature? When you are baking a cake or making chicken, what temperature is the oven usually at? 350 or 400 degrees Fahrenheit, right? Well, we're able to experience the sun's energy from 93 million miles away because the core of the sun is more than 28 million degrees!

Explain

Today, we will talk about an environmental health issue that involves the sun: sun safety. But before we talk about climate and how we need to protect ourselves from the sun, let's think about the sun a little more.

Optional Activity: Sun Sing Off *(10–20 minutes)*

Do

Divide the group into smaller groups of 3–4 students and explain that you will have a Sing Off between groups. Each song or rap has to have one of the following words in it: Sun, Sunshine, Rays, Star, Light or Heat.

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2. Defining Terms and Sun Smarts

(20 minutes)

Ask

Why do we need the sun? What does it provide us?

Prompts: Would we have plants without the sun? Food? Would we be able to live if the weather got extremely cold or extremely hot?

Explain

The Earth and all of its animals and plants work together as a system to sustain all of the trillions of living things. It's a careful balance and if one thing changes, it's going to have a ripple effect across the entire system.

Ask

What are some words that you think of when you think about the sun? Or being out in the sun?

Prompts: Light, sweat, heat, hot, warm, happy, sunscreen, sunglasses, sunburn.

Explain Ask

The sun is essential for life on Earth. Just as plants need the sun to grow, humans and other animals need it as well. What else do we get from the sun?

Prompts: Do sunny days make you happier? In the middle of winter, don't you long for summer? What would you eat if the sun didn't help plants and animals to grow?

Explain

The sun helps our bodies make vitamin D, which helps us to have strong bones and teeth. But certain foods and vitamins are excellent, safer sources of vitamin D.

Explain

The sun also helps to regulate our sleeping rhythms. We have evolved over millions of years along with the sun.

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2. Defining Terms and Sun Smarts *(continued – page 2)*

Ask

So, the sun provides us with a lot of things. But if we're not careful, it can also cause a lot of damage. What are some of the harmful things that the sun can do?

Prompts: Have any of you ever had a sunburn? Or have you seen plants that got too much sun and not enough water?

Teacher Note: The issue of sunburns and the need for sunscreen may be a sensitive one for students whose families either don't use sunscreen or believe that sunscreen is only necessary for light-skinned people. As you are leading this discussion, be aware that this issue may cause some tension and refer to your organization's policy and practices for addressing sensitive issues.

Explain

And sunburn is exactly what it sounds like—some of the energy of the sun is in the form of ultraviolet rays that can burn our skin cells, and the skin gets red and feels warm. Did you know that you can get a sunburn on a cloudy day? Up to 80 percent of the sun's ultraviolet rays can get through on a cloudy day. Remember that even if you don't burn, any change to your natural skin color is a sign of damage to your skin. Sunburns can lead to skin cancer.

Explain

While we need the sun, we also need to protect ourselves from its strong ultraviolet radiation. We need to protect our body's largest organ, our skin.

Ask

What are ultraviolet or UV rays?

Explain

Remember when we said that the sun was like a giant power plant throwing off energy? Well, some of the energy is in the form of light and some is heat, and it's also sending energy down in the form of ultraviolet rays that are invisible—the same way that heat is invisible. We can't ***see*** heat and we can't ***see*** ultraviolet rays.

Explain
Ask

Have you ever heard of the UV Index? What is it? The UV Index assigns a number to the next day's UV—or ultraviolet ray—levels and highlights the level of exposure for people who plan to be outdoors. Just like the air quality code you hear about on TV, you should pay attention to the UV levels and plan your activities to protect yourself from getting too much sun by using shade and covering up with sunglasses, a hat, and protective clothing, and using sunscreen. The higher the number on the scale of 1 to 11+, the more careful you need to be.

Optional Activity: Heat and UV Around the Country *(10–20 minutes)*

Do

Share heat and UV Maps from around the country with the class. Print a dozen different maps of heat, UV, and humidity for the same day from online weather sites to allow students to see the range of temperatures around the country or the world. Have students call out the location (which you can find on a map) and the numbers and record them on the board.

Explain

Different parts of the country or world experience temperature and UV differently, but everyone experiences UV.

Explain

Since we can't separate the potential bad effects of the UV rays (wrinkles, eye damage, sunburn, skin cancer, and immune system suppression) from the good, like vitamin D, experts recommend that you eat foods with vitamin D and take vitamin D supplements rather than seeking the sun for vitamin D.

Ask

What are some foods that are high in vitamin D?

Answer: Salmon, tuna fish, fortified milk and orange juice, eggs, and lots of cereals and yogurts have added vitamin D.

Explain Ask

But doesn't the sun feel good sometimes? Don't you want to go out and feel it on your face? You certainly can; but remember to wear sunscreen, sunglasses, and protective clothing, like hats and shirts with sleeves, long pants or long shorts with high socks, to prevent damage to your skin and eyes.

Ask

Children are particularly at risk from the sun. Why might this be?

Explain

Children's skin is more sensitive and is growing more rapidly than that of adults (the cells are multiplying at a much faster rate). And children often spend a lot more time outside in the sun than adults do.

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Explain

Childhood sunburns increase the risk for skin cancer later in life and can also increase the risk for skin cancer as early as the late teen years and early to mid-20s. A significant amount of sun exposure occurs before age 18. Protecting the skin and eyes during the first 18 years of life can reduce the risk of some types of skin cancer by up to 78 percent. Similarly, wearing sunglasses helps to prevent problems with your eyes later in life.

Ask

How can we protect ourselves from the sun?

Explain Do

*[Show **Poster #2** (photos of turtle, muddy pig, camel's face, meerkat, and lions in the shade).]* There are some simple steps that you can take and some animals can show us how. Check out these animals—they are all either using a strategy or their bodies have evolved to help protect them from the sun's powerful rays.

Optional Activity: Group Work on Animal Sunscreen *(10–15 minutes)*

Do

Divide the class into groups to determine how each animal is protecting itself from the sun.

Ask

[Review each animal.] What do you think each one is doing to be sun smart?

Prompts: Which animal looks like it's wearing sunglasses? Has any animal here layered something on to protect itself? Which one has "clothes" on?

Explain

- The **turtle** wears a shell like a shirt—its skin can't be burnt if it's not exposed to the sun. You can wear clothing to protect your skin from the sun.
- The **pig** covers itself in mud as a sunscreen. You should wear sunscreen of at least SPF 15 whenever you are outside.
- The bumps over the **camel's** eyes act like a hat. You should wear a hat to protect your face, neck, and head from the sun.
- The black rings around the **meerkat's** eyes act as sunglasses. You should wear sunglasses if you're going to be outside for long periods.
- These **lions** are using the shadow rule—when your shadow is shorter than you are, seek shade!

Ask

Do all people need to protect themselves from too much sun? Do dark-skinned people need to do things like wearing hats, sunglasses, and sunscreen?

Prompts: Have you ever heard that African Americans or Native Americans or Hispanic Americans don't need to protect themselves because their skin is darker?

Explain

ALL people need to be sun smart and wear hats and sunglasses, seek shade, and wear sunscreen! Ultraviolet rays can damage everyone's skin and eyes.

Optional Activity: Sun Smarts Posters *(10–15 minutes)*

Explain

Coloring or creating Sun Smarts signs for use in the teaching space or at home. Now that we know how important it is to be sun smart, we want to share that knowledge. Each of you (or in pairs) will make a poster that explains one way to be sun smart. Think back to all the things we discussed.

Do

Pass out large sheets of paper or the coloring page and markers or crayons.

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3. Close and Take-Home Talk

(8 minutes)

Explain Do

Close your eyes and take a nice deep breath. We've covered a lot today. We talked about the sun and why we need it.

Explain

Remember how we talked about needing certain ingredients to make our environments healthy a little while back? The sun is a key ingredient in our environment, but we need to be sun smart. We looked at some animals that were practicing sun smarts. There are five things that we can do to be sun smart—who can name one? *[Go through all five: Wear clothing to protect your skin from the sun; wear sunscreen of at least SPF 15 when you are outside; wear a hat to protect your face, next and head from the sun; wear sunglasses outside; and when your shadow is shorter than you are, seek shade.]* You can open your eyes now.

Explain Do

For the next few weeks, we're going to chart the UV Index each day. We're going to chart the temperature and the UV Index and take a few notes on the weather. Let's see if we notice anything about ultraviolet rays. *[Show **Poster #3** (Charting the UV Index).]*

Take-Home Talk

The coolest part about learning something new is sharing the knowledge. Tonight, when you get home, I want you to talk with your family about the things that we learned today. Talk with your family about why is it important to protect your skin and eyes while outside and discuss the steps that you can all take to be sun smart.

Explain Do

*[Pass out **Take-Home Talk**.]* This Take-Home Talk sheet has some things that you can share with your family and some activities that you can do at home. See what you can accomplish on the sheet and we'll talk about it the next time we meet.