

LESSON 1 | The Power of the Sun

Objective

Students will learn about the sun and how the energy it produces impacts Earth and people.

Time

45 minutes

Materials

- Sun Protection in Action classroom poster
- The Power of the Sun activity sheet
- Student pre-assessment sheet
- Computer with internet access

Complete the learning with a hands-on experiment where students will learn about how their shadow length indicates when the sun's rays are most harmful: [scholastic.com/sunsafety](https://www.scholastic.com/sunsafety).

Assessment Answer Key

1. False; 2. True; 3. False; 4. True; 5. False; 6. False; 7. True; 8. False.

Before You Begin

Copy and distribute the pre-assessment sheet to discover what students know about the sun and sun safety. At the end of the program, have students take the assessment again to assess their learning. When you help us evaluate the program, you'll be entered for a chance to win \$500! Go to [scholastic.com/sunsafety](https://www.scholastic.com/sunsafety) to learn more.

Get Started

1 To introduce this lesson, challenge your students to describe three reasons why we need the sun as well as three ways the sun can cause damage to our skin. Make sure to discuss how Earth needs the sun for light and warmth and to grow food.

2 Ask students whether they think the light and warmth from the sun are the same everywhere on Earth and then discuss the different types of climates around the world. Ask: *Where is the sun stronger and where is it weaker?* Talk about the type of weather you have in your area; ask students: *Are you in the mountains or in the southern part of the country, closer to the equator?* Explain that no matter what climate you live in, the sun's rays reach Earth and your skin.

Use the Activity Sheet

1 Distribute copies of The Power of the Sun activity sheet. Read it aloud as a group, or have older students read it on their own.

2 Explain that there are two main types of UV rays: ultraviolet A (UVA) rays, which penetrate into the dermis (the skin's thickest layer), and ultraviolet B (UVB) rays, which are responsible for producing sunburn on the skin's surface. After discussing how the UV

Index helps warn us about harmful rays, share the day's UV Index for your area with students to reinforce the concept. Index numbers can be found at bit.ly/sunsafetyUV.

3 After students have reviewed the text, have them answer the following questions: 1. *What does the sun send to Earth?* 2. *What is the UV Index?* 3. *At what time of day is the sun the strongest?* 4. *How can you protect yourself from the sun?*

5th Grade Extension As an independent activity, have students select five diverse geographic locations. For a week, have them track the UV Index in these locations and compare them. Have students write a report on what they have found, specifically how geography and climate impact the number.

Critical Thinking

Ask students to describe any sun safety practices they may follow and if there are any times when you don't need to protect your skin from the sun. Have students name those times. For each statement, make sure you counteract the myths with the facts. Make sure these points are addressed in the discussion:

- We have to protect our skin all year round; no matter what climate we live in and even on cloudy days.
- UV rays can damage anyone's skin, regardless of skin color.
- You need to apply sunscreen regularly throughout the day, and being in the ocean or a pool does not protect skin from the sun.

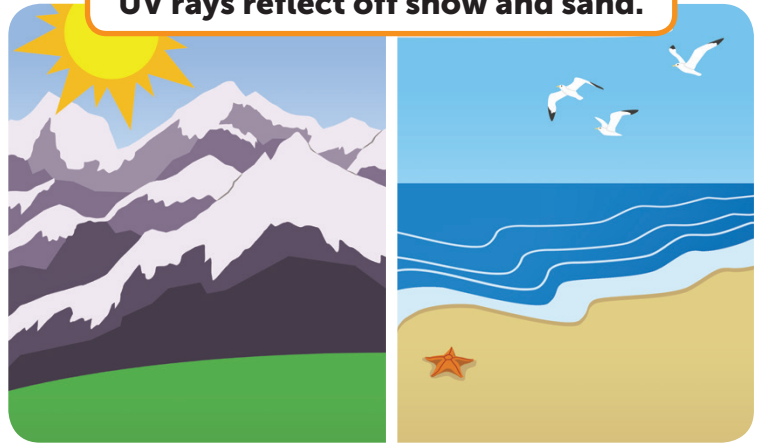
Review and encourage students to practice the sun safety tips on the poster.

The Power of the Sun

The sun is a star filled with gases that create energy. This energy makes the heat and light the sun gives off. It only takes eight minutes for the sun's light to get to Earth. That's pretty fast, considering the sun is about 93 million miles away!

Along with the light and heat, Earth uses the sun to grow plants and keep us healthy. The sun also sends out invisible ultraviolet (UV) rays. Even though we can't see or feel them, UV rays can be harmful. UV rays can burn and hurt our skin and eyes, so we need to protect ourselves from them.

UV rays reflect off snow and sand.



What Is the UV Index?

The UV Index is like a warning code. It tells us the amount of UV rays coming from the sun. It lets us know how harmful the rays can be to our skin and eyes when we're outside. The UV Index ranges from 0 (low) to 11 or more (extremely high). We need to be extra careful when the index is high.

How Do UV Rays Work?

There are things we can do to help protect ourselves from the sun. For example, apply sunscreen with a Sun Protection Factor (SPF) of 30 or higher at least 30 minutes before you go outside. SPF 30 blocks 97% of UV rays. We should also learn about the sun's strength.

- The sun's rays are strongest and most harmful when the sun is directly overhead between 10 a.m. and 4 p.m.
- The sun's rays are strongest in the summer, but its rays can also be harmful in the winter.
- UV rays go through clouds, so we need to protect ourselves on cloudy days, too.
- UV rays can reflect off snow, water, and sand at the beach, as well as pavement and sidewalks. This means the rays can reach our skin.
- The sun is strongest at or near the equator. UV rays travel a shorter distance to get to the area.
- UV rays are stronger at higher altitudes, such as in the mountains.