

# grades K-2



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A Partnership Program of the U.S. Environmental Protection Agency  
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K-2 EDUCATIONAL STANDARDS



SUBJECT		SUNWISE ACTIVITY TITLE		EDUCATIONAL STANDARDS	
Astronomy	Sunwise Solar System	A Sunwise Legend	A Sunwise Poem	Ask and Answer Questions about Key Details in a Text (RL.K.1; RL.1.1; RL.2.1)	X
Math	Math Patterns with the Sun	A Sunwise Beach Party	A Sunwise Beach Party	Actively Engage in Group Reading Activities (RL.K.10; SL.1.1b; SL.2.1b)	X
P.E.	Health, P.E.	Buy Sun Wise	Buy Sun Wise	Use a Combination of Drawing, Dictating and Writing to Write Narratives (W.K.3; W.1.3; W.2.3)	X
Health	English/LA, Social Studies	Speedy Sun Kelly Bruce	Shuny Says	Participate in Collaborative Conversations (SL.K.1; SL.1.1; SL.2.1)	X
PE, Health	Math, English/LA	PE, Health	Shuny Says	Confirm Understanding of Text Read Aloud by Asking Questions (SL.K.3; SL.1.3; SL.2.3)	X
PE, Health	Math, English/LA	PE, Health	PE, Health	Participate in Shared Research Projects (W.K.7; W.1.7; W.2.7)	X
Health	English/LA, Social Studies	PE, Health	PE, Health	Describe with Relevant Details, Expressing Ideas and Feelings (SL.K.4; SL.1.4; SL.2.4)	X
Health Concepts	English/LA	PE, Health	PE, Health	Determine the Meaning of Words (RL.4; RL.1.4; RI.2.4)	X
Decision-making Skills	English/LA	PE, Health	PE, Health		X
Gon-settling Skills	English/LA	PE, Health	PE, Health		X
Health Enhancing - Behaviors and Risks	English/LA	PE, Health	PE, Health		X

## K-2 EDUCATIONAL STANDARDS



SUBJECT		SUNWISE ACTIVITY TITLE		SUNWISE	
<b>EDUCATIONAL STANDARDS</b>					
Mathematics					
Measurement and Data	X				
Operations and Algebraic Thinking		X			
Number Operations in Base Ten		X	X		
Demonstrates Competency in a Variety of Motor Skills and Movement Patterns			X	X	
Applies Knowledge of Concepts Related to Movement and Performance		X		X	
Exhibits Responsible Personal and Social Behavior That Respects Self and Others		X	X	X	
Patterns in Behavior That Help Animals Survive (1-LS1-2)					X
All Organisms Have External Parts That Protect Them (1-LS1-1)					X
All Animals Have Body Parts That Provide Information About Their Surroundings (1-LS1-1D)				X	
Patterns of Sunrise and Sunset Can Be Observed, Described, and Predicted (1-ESS1-1)				X	
Culture				X	
Social Studies				X	
People, Places, and Environment				X	

\*Please note that the standards listed in the above table have been paraphrased. For more information on the standards used, please refer to the Educational Standards section of the Tool Kit (page 31).

# A SunWise Legend

## Wise Heart Saves the Day<sup>1</sup>

Once upon a time, a very long time ago, there lived a young Indian boy who was both smart and kind and who longed to make the world a better place for his people. His name was Wise Heart, and he belonged to the Cahto Indian Tribe that lived in what is now northern California. The world in which Wise Heart lived was cold and barren, with few plants or trees. During the day, his world was gloomy and grim, lit by only a faint, dim light that seemed to come from very far away. At night, his world was always cloaked in deep darkness, a darkness that was broken only by the campfire and the torches that the elders alone were allowed to carry.

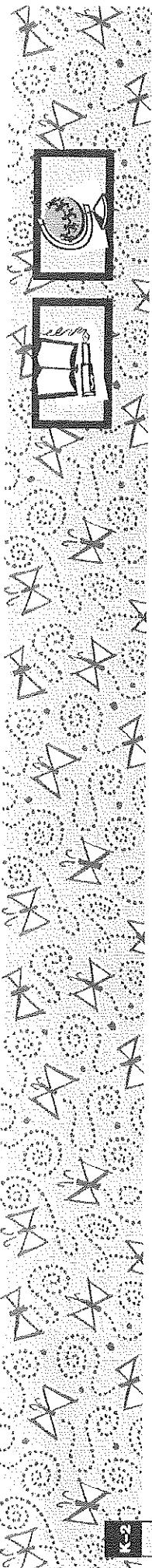
Wise Heart knew that the world had not always been such a dark and gloomy place. Sometimes as his tribe huddled around the campfire at night, the elders told stories—ancient stories—of a time when a bright light they called the Sun had warmed the world during the day, while its distant relatives, the Moon and Stars, had filled the night. Wise Heart had also seen the ancient tribal cave paintings that showed a world filled with the bright light of the Sun and with towering trees and plants. Whenever Wise Heart or the other children asked the elders how the world had lost its Sun, Moon, and Stars, the elders would become quiet and warn the children not to ask such questions.

One night, while Wise Heart slept, he dreamed of the beautiful, Sun-filled world that he had seen in the cave paintings. There were blue skies, trees laden with delicious fruit, and smaller plants with fragrant flowers. Then, in his dream, he heard the sound of a fiercely shrieking wind, and the Sun suddenly seemed to be torn from the sky, leaving only a dim glow in its wake. Wise Heart woke from his dream troubled and unable to fall back asleep.

When the dim light of day returned, Wise Heart cautiously approached the oldest and most respected of the elders, a stooped old man named Running Water. The boy recounted his dream and asked the old man if he knew what had happened to the Sun so many years before. At first Running Water scolded the boy and warned him not to wonder about such things. Finally, however, seeing the boy's determination to know the truth, Running Water relented. He told the boy that many years before, an Evil Spirit had become jealous of the brilliance and warmth of the Sun and had stolen it from the sky and hidden it in a deep canyon on the far side of the world. The Evil Spirit had also stolen the Moon and Stars and hidden them away as well so that the humans would not have enough light to be able to search for and free the Sun from its captor. From that day on, Running Water explained, the world had been dimly lit. Bound with thick ropes to a giant boulder, the Sun could make only a few of its rays reach above the edge of the deep canyon.

All that day Wise Heart thought about Running Water's words. He watched his people as they struggled to survive by eating the few fish in the stream and few small plants on the hillsides. By the time darkness fell, Wise Heart had made a decision. He would journey across the mountains, to the far side of the world. He would find the deep canyon where the Sun, Moon, and Stars were being held by the Evil Spirit, and somehow, he would free them. That, he decided, was how he would help make the world better for his people.

Early the next evening, Wise Heart secretly set out for the distant mountains, carrying only a skin of water, some dried fish, and a sharp knife. As he traveled, he asked the kind spirits of his people to help him, and they did. Guided by a fierce and powerful eagle and thousands of fireflies, Wise Heart found his way through the steep, dark mountain range. A sure-footed



mountain goat led him to the edge of the deep canyon in which the Evil Spirit was guarding the Sun, Moon, and Stars. Just at that moment, a traveling family of field mice offered to chew through the ropes that bound the Sun, Moon, and Stars while Wise Heart distracted the Evil Spirit. Accepting their offer of help, Wise Heart climbed cautiously over the rim of the canyon and slowly began to climb down the steep cliff toward the canyon floor below. Just as he reached the bottom, the silence was suddenly pierced by the same sound of shrieking wind that he had heard in his dream. The Evil Spirit, red-faced and shaking with rage, stepped between Wise Heart and the Sun, Moon, and Stars and demanded to know why the boy had intruded in his canyon. Before Wise Heart could answer, the Evil Spirit noticed the boy's water skin and demanded that he be given some water to quench his thirst and to cool his sun-scorched body. In reply, Wise Heart said, "Powerful spirit, I am happy to give you all my water, but first let me add some special herbs that will quench your thirst and cool your sun-scorched body better than plain water." The Evil Spirit agreed, and after Wise Heart had added the herbs, which were really sleeping herbs, he drank the water greedily. Soon after, the Evil Spirit fell asleep.

Immediately, as if on cue, the family of mice began gnawing through the thick ropes that held the Sun, Moon, and Stars captive. When they had almost completed their task, the Evil Spirit, feeling the heat of the Sun's rays as it slowly began to ascend into the sky, awoke from his slumber. With a piercing shriek, the Evil Spirit rushed to recapture the Sun. Just before he could do so Wise Heart cut through the remaining fragments of rope with his knife. With the ends of the rope held

tightly in his hands, Wise Heart and the mice sailed into the sky. A short time later, as the Sun passed over Wise Heart's village, they all jumped safely into the soft boughs of the tallest fir trees. From there, Wise Heart looked up to see the first and most beautiful sunrise that he would ever see.

Wise Heart returned to his tribe as a hero. The people hailed him as the Sun Guard and thanked him for returning light and warmth to the day and light to the night. Almost immediately, the trees and plants began to grow larger, and the people danced and celebrated in the warmth and brightness of the Sun. After several hours, however, the people began to complain. They said, "It's too hot! I'm thirsty!" Others complained of feeling tired and of their skin feeling red and sore. Wise Heart was amazed that his gift that had at first caused so much joy was now causing so much pain and discomfort. He thought for a moment and then quickly led his tribe to the river's edge. There he told his people to drink deeply and to coat their skin with mud from the riverbank. He told them, "The mud will soothe your skin and protect it from the powerful rays of the Sun," and they found that he was right. Now Wise Heart was truly a hero. His tribe could now enjoy the Sun and all the beauty it gave to the world, without being hurt by its powerful rays. Even today, Wise Heart is a hero, for though he did not know it, he had developed the first sunscreen with an SPF of 45!

The legend is available with illustrations at the Children's Melanoma Prevention Foundation website, [www.melanomaprevention.org](http://www.melanomaprevention.org).

<sup>1</sup>This story has been adapted from traditional tales by Jane Shanny and Mary Ellen Maguire-Eisen of the Children's Melanoma Prevention Foundation.

## A Sunwise Legend

TEACHER PAGE

卷之三

Read to your class "Wise Heart Saves the Day," a legend about the origin of the sun inspired by the Native American Cahto Tribe of California (on the Student Page of this activity). Discuss with them the location of California in relation to where you are located. While doing this, explain to them that people from all over the world have different ideas and beliefs about the sun. Discuss what they remember from the story. Ask students to make up a story about the sun. Ask them why the sun is so important that people from all over the world tell stories about it (e.g., it makes plants grow, provides light). Suggest checking out a book about the sun the next time they go to the library.

卷之三

15–30 minutes

四

Large paper  
Markers  
Paper for drawing  
Crayons

## Learning Objective

The students will learn that people from all over the world have different stories about the sun. Before the story is read, ask the students about the power of the sun, both good and bad. Write their ideas on the paper and then cover it up. After reading the story assess what they have learned by asking them to write a story about the sun and why it is important to people around the world.



## Hot Potato with the Sun

### Estimated Time

Teacher's discretion

卷之三

Ball (yellow)

ریاضیات و ریاضیاتی فلسفه

卷之三

**Directions** Have the students make a large circle and pretend the ball is the sun. Students pass the ball to each other as music plays. When the music stops, the student with the ball should say one way to protect themselves from the sun. For more sun safety tips, please see the *Sun Wisdom* section of the Tool Kit.

Students should do the SunWise Word Search supplemental activity located in the back of the K-2 section of the Tool Kit as a follow-up to this activity.

Hippos secrete their own  
gilly pink sunscreen.



## A SunWise Beach Party

### Directions

You and some of your classmates are having a SunWise Beach Party. What will you bring? Look out because some of your classmates might not be 100 percent SunWise! Answer the questions.

### Questions

How many students bring ?

3 6 2 4

How many students bring ?

7 4 3 5

How many students bring ?

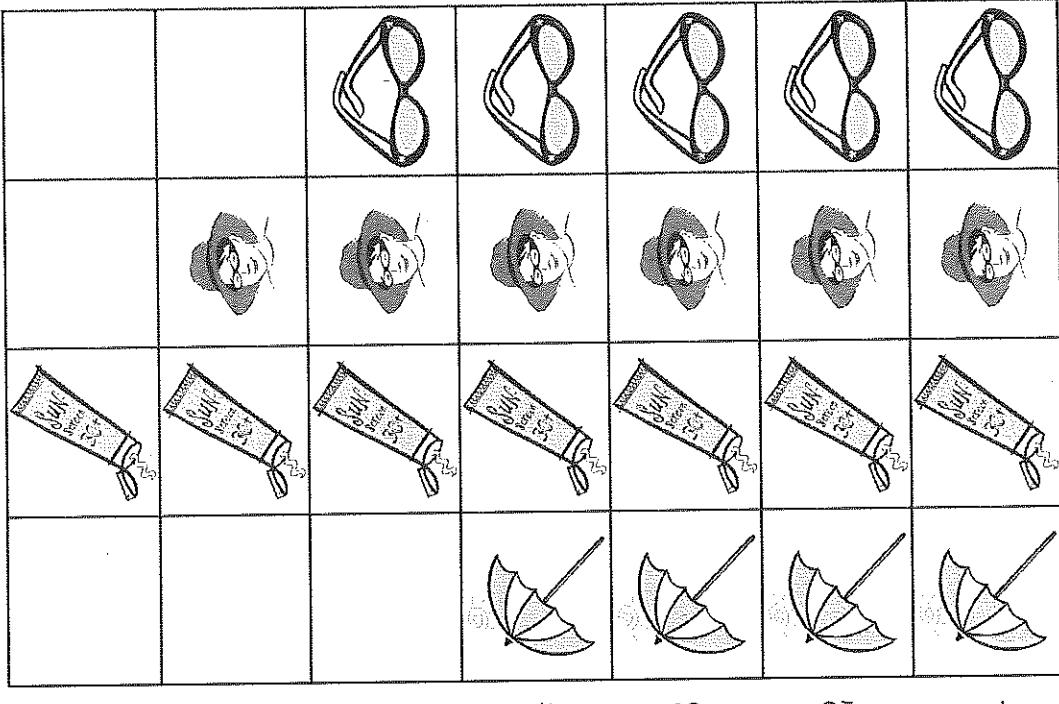
6 3 5 7

How many students bring ?

4 6 2 5

How many students bring all SunWise items?  


7 1 5 4



## A SunWise Beach Party

### Directions

In preparation for this activity, discuss with your students the importance of being SunWise. Stress the prevention steps as listed in the *SunWisdom* section of the Tool Kit.

### Supplies

Crayons or pencils

### Learning Objective

The objective of this activity is to have students answer questions and interpret data about the variety of ways they can protect themselves from the sun's harmful UV rays. After completing this activity, students should understand that using sunscreen, hats, sunglasses, and umbrellas are examples of SunWise behavior. Assess whether the students understand they must protect themselves from the sun's harmful UV rays by asking them to draw a picture of their SunWise family on a visit to the beach or park.

- Questions and Answers**
- How many students bring beach umbrellas?  
3 6 2 4
- How many students bring sunscreen?  
7 4 3 5
- How many students bring hats?  
6 3 5 7
- How many students bring sunglasses?  
4 6 2 5
- How many students bring all SunWise items?  
7 1 5 4

Camels have bumps over  
their eyes that act as built-in  
sun hats to help keep out  
bright sunlight.

## Buy SunWise

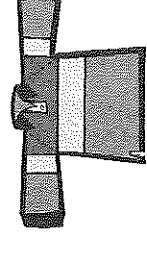
### Directions

Your class is taking a trip to the store to buy sun-safe products. Working in your small group, select the items you want to purchase to be sun safe. Record your selections on the chart.

Figure out how much all of your items will cost together. You may use calculators.

What coins and bills would you use to purchase all of the items? Show the coins and bills your group selected by marking your chart or cutting and pasting the coins and bills on to paper.

### Bills and Coins

Product	Cost	Bills and Coins
	\$7.79	
	\$8.34	
	\$9.27	
	\$12.67	
		\$12.89



dollar	\$1.00
quarter	\$0.25
dime	\$0.10
nickel	\$0.05
penny	\$0.01

## Buy SunWise

### Estimated Time

30 – 60 minutes

### Materials:

Chart of items and prices for possible purchase

Charts of various coins and bills

A page of dollars and coins for students to cut out and glue/paste (optional)

Calculators (optional)

### Learning Objective

The objective of this activity is to help students:

- 1) understand that there are many products that can be used to protect their skin from the sun's harmful UV rays; 2) understand that various coins have different values and can be used in multiple combinations to make the same amount; and 3) become familiar with the process of making purchases.

### Directions

Engage the class in a large group discussion to assess students' understanding of the importance of having and using sun-safe items to protect their skin from the sun's harmful UV rays. After determining that human skin can be harmed from the sun and that we should use products to protect ourselves, divide the students into small groups to complete the tasks. Select activities that are appropriate for your class.

- Assign students to small groups and instruct them to select the items they would purchase to be safe from the sun. Have each group record their selections on the provided chart.
- Once selections are made, ask the group to determine how much money they would need to purchase the items and what coins they would use to make the purchase. Have each group record what coins and bills they will use on the provided chart, or cut and paste their coins and bills on to paper.
- Have each group of students share their selection of products and the bills/coins they chose with the class.
- Help the students make conclusions about sun safety and the use of money. Instruct the students to draw themselves using the products they selected to protect themselves from the sun.

*The skin is the largest organ of the body and is the fastest growing part of the body. It makes up 16 percent of the body's weight.*

## Speedy Sun Relay Race

### Directions

One student in your group will be the “model.” The model’s job is to dress in sun-safe clothes as fast as possible with the help of the team. Across the field will be a pile of clothes. Each team member, besides the model, will take turns running to the pile, selecting one sun-safe item, and running it back to the model. The first team to have a completely SunWise model is the winner!



Rhinos use mud as a natural sunblock. They roll over in the thick coating on their skin to protect themselves from the sun.

Polar bears have special eyelids that act like sunglasses in the sun's blinding glare off of the snow. rays reflecting off of the snow.

## Speedy Sun Relay Race

### Estimated Time

30 minutes

### Supplies

One set of the following SunWise and non-SunWise clothes and items for each team:

Long-sleeved shirt (preferably with collar)

Long pants (optional)

Hats (wide-brimmed, cowboy)

Sunglasses

Empty bottles of sunscreen, some with SPFs of 30 and higher, some with lower SPFs.

Shoes (optional)

Various other articles of clothing that are not sun safe, like tank tops, t-shirts, shorts, baseball caps, visors, etc.

*Note: Make sure that the clothes are large enough for each student to put on and take off easily.*

### Learning Objective

This activity will challenge students to think quickly about sun-safe behavior by selecting correct sun-safe clothes when presented with several options. Assess whether the students learned how these clothes will help protect them from the sun's harmful UV rays by asking them the following questions:

- What are three items that the model is wearing that you would pick to protect yourself? Explain why you chose these three items.
- How many of you dress like the model when you play outside? Why do you think dressing like this is safer for you?

- What will you remember to put on before you leave your house to protect yourself from UV rays? Explain why you would take these actions.

### Directions

Organize the class into teams of five or more and line them up at the start of the racecourse. Place the pile of clothes at the other end of the racecourse.

Have each team select one student to be the SunWise model. This student will stay at the starting point of the race, donning sun-safe clothes. The other team members should each take turns running to the pile of clothes, selecting one item, and bringing it back to the model.

The first team to have a completely SunWise model is the winner. The SunWise models should be wearing a protective hat, long-sleeved shirt, and sunglasses, and be carrying a bottle of sunscreen with SPF of 30 or higher. Incorrectly dressed models must decide what they are missing, and the other team members must continue bringing back items until the model is sun safe.

## Sunny Says

### Estimated Time

20 minutes

### Learning Objective

This activity will teach children to distinguish between the helpful and harmful effects of the sun. Assess the students by asking them to tell you the effects of overexposure to the sun and not wearing sunscreen and proper clothing. They should also list some positive effects of the sun.

### Discussion Point

Discuss with the class the importance of protecting themselves from the sun. Too much sun can hurt the skin and eyes. On the other hand, the sun is beneficial because it helps our bodies make vitamins and helps things grow, such as fruits, vegetables, flowers, and trees (which provide protective shade).

### Directions

The format follows "Simon Says."

For example:

*Sunny Says grow like a tree.*

*Sunny Says put your hat on.*

*Take your hat off.*

*Sunny Says protect your nose.*

*Sunny Says sprout like a flower.*

*Sunny Says put your shades on.*

*Sunny Says put your shades off.*

*Sunny Says look at your watch.*

*Sunny Says find your shadow.*

*Sunny Says put sunscreen on your nose.*

*Sunny Says put sunscreen on your arms.*

### Physical Education Variation:

Have children line up side-by-side or in small groups/teams of two to three students. Children take three big jumps (giant steps, or other appropriate movement) forward after every correct response. Those who respond incorrectly remain still but advance the next time they respond correctly. The goal is to reach the other side of the field as either an individual or team. The first individual or team at the finish can share with others what they know to be correct "Sunny Says" actions and why it is important to know and practice this behavior.

*Sunny Says read the SPF number on the sunscreen container.*

Students responding to a non-"Sunny Says" command will be eliminated from play. Continue the game until there is a winner.



## Watch Your Shadow

### Directions

Using the sun as your light, you are going to trace your shadow. Choose a partner and stand in the sun on the sidewalk or blacktop. With a piece of chalk, your partner will trace your shadow starting from your feet. Write your name in your shadow.

Later in the day, trace your shadow again. Remember to position your feet in the same spot.

### Questions

1 Is your shadow always the same size?

2 Can the moon make shadows?

3 What is the shadow rule?



# Watch Your Shadow

## Estimated Time

At least two 15-minute intervals during one day

## Supplies

Chalk (use different color chalk for each time of day you trace your shadow)  
School yard with dark cement or blacktop  
Clear, sunny day  
Watch or clock

## Learning Objective

The objective of this activity is to demonstrate to students what causes a shadow, how shadows change from morning to evening, and how they can tell by the length of their shadows what times of day they should seek protection from the sun's harmful UV rays. Ask the students to guess how their shadow will change during the day. Once the day is over, ask them to compare their prediction to the actual shape and size of their shadow. Have students explain why the movement of the Earth over the course of the day causes shadows to change.

Go outside later in the day and have each student stand on the feet of their first shadow tracing. Instruct them to have their partner retrace their new shadow on top of the original.

## Discussion

Discuss how shadows are formed. A shadow is a dark figure or image cast onto the ground by our bodies blocking the light of the sun. Both the sun and the moon can create shadows. We have noticeable shadows throughout the day; however, our shadows are much shorter closer to noon when the sun is overhead. Explain to the students that when their shadows are long (during the early and late parts of the day) the sun is not as intense. When their shadows are short (during the middle part of the day) the sun is more intense, and they are at a greater risk from the sun's damaging UV rays. Also mention that visible light causes shadows, not UV rays. UV rays are present even on cloudy days. Nevertheless, the shadow rule is a good indication of UV intensity. Teach the students the shadow rule, "Watch your shadow. Short shadow, seek shade!"

## Questions and Answers

- 1 Is your shadow always the same size? No. Your shadow is long in the early morning and late afternoon, and short during the midday.
- 2 Can the moon make shadows? Yes. When there is a full moon, the light is bright enough to create a shadow, but no UV rays are emitted from the moon.
- 3 What is the shadow rule? "Short shadow, seek shade!"

## Directions

Take the students outside in the morning and again around noon. Have students choose a partner. Instruct the students to trace their partner's shadow using a piece of chalk on the cement surface of the schoolyard. They should begin tracing the shadow from the feet. Write the time students traced their shadows so later they can see how the different positions of their shadows correlate to the time of day.

# The Sun Shines Around the World

## Estimated Time

20–45 minutes

## Supplies

Map of the world (for display)

Magazines and photos of foreign places and people

## Learning Objective

This activity teaches students about a variety of ways people all over the world protect themselves from the sun's harmful UV rays, as well as to understand that all organisms have external parts that are used in different ways to survive, and that all organisms have body parts that capture and convey different kinds of information. After completing this activity, students should be able to describe at least two different ways individuals from the country investigated practice sun safety.

## Directions

Assign students to work in small groups. Each group should choose a country to research. Perhaps you have been on an exciting trip and would like to share your photos or postcards with your students. If necessary, provide a list of countries that have different climates than the United States to help students with their selections. Discuss the chosen locale, its people, and customs, especially pertaining

to sun protection. Use the questions to stimulate discussion and to reinforce sun safety lessons.

If students are not able to do short research projects, provide them with pictures from four different countries, including pictures of people, houses, clothing, and landscapes from each country. Have students take one set of pictures and work in groups to discuss the questions.

## Vocabulary Words

**Custom**—A habit or an established way of doing something.

## Questions and Answers

- 1** What is the name of the country researched?  
*Students should be able to name the country.*
- 2** Where is the country? *Students should be able to point to the location of the region on the map.*
- 3** What types of houses do the people live in?  
*Answers should match according to the country researched.*
- 4** What kinds of clothes do the people wear?  
*Answers should match according to the country researched.*
- 5** What are three differences between your home state or town and the place researched? *Answers should match according to the student's home state or town and the country researched.*

- Additional Resource**  
[www.nationalgeographic.com/maps/index.html](http://www.nationalgeographic.com/maps/index.html)  
Offers a variety of interactive map tools and a brief summary of each country of the world, such as goods produced, literacy rates, or GDP.
- 6** Describe the climate of the country. *Students should compare the climate of the country to the United States.*
- 7** What are the average temperatures in the summer and winter? *Answers should match according to the country researched.*
- 8** Based on the climate of the country, would you predict that people who live there need to protect themselves from the sun? Describe how people who live in the country protect themselves from the weather, including the sun. *Students should be able to describe at least two different ways individuals from the country researched practice sun safety.*
- 9** Why is it important to protect your body from the weather, including the sun? Which of your body parts are most important to protect from the weather/sun? *Answers should reflect students' understanding and the country researched.*
- 10** If your eyes were damaged, how would your life be different? *Answers should reflect students' understanding.*

Meerkats have black rings around their eyes that absorb the sun's rays and protect their eyes from sun damage.

## Keep an Eye on Sun Safety

**Estimated Time**  
15–20 minutes

### Supplies

Paper  
Pens or Pencils

Who Am I? Animal Quiz, available on the SunWise website ([www.epa.gov/sunwise/doc/Animal\\_WhoAmI.pdf](http://www.epa.gov/sunwise/doc/Animal_WhoAmI.pdf))

### Learning Objective

The aim of this activity is for students to learn the importance of protecting their eyes from overexposure to the sun's harmful UV rays. By understanding animal adaptations for sun protection and drawing a sun-safe habitat for zoo animals, students will draw connections to the ways they can protect themselves from overexposure to the sun. Assess if they have learned how to protect their eyes from UV radiation by asking what they should do when they play outside.

### Directions

Describe to the students the situation of Sammy the sea lion, who is living at the zoo without any shade in his habitat. Explain to the students that the sun can damage Sammy's eyes if he doesn't have any shade, especially since the sun can reflect off the water of his swimming pool. Have the students draw an improved habitat that will help keep Sammy's eyes healthy.

Teach the students about animals that have specialized body parts or behaviors to protect them from the sun. Use the “Who Am I? Animal Quiz” as a guide. You may also refer to the “SunWise Animals” on the SunWise website. Have students learn about the animals and where they live, and then make associations about how all animals, including humans, need to protect themselves from the sun.

Ask the students to think of ways that they can keep their eyes safe in the sun. Explain that the most important ways are avoiding overexposure to the sun by wearing sunglasses (appropriate sunglasses block 99–100% of UV rays), wearing a wide-brimmed hat, seeking shade when UV rays are most intense (between 10 a.m. and 4 p.m.), paying attention to the UV Index when planning outdoor activities, and watching out for reflective surfaces, such as water, snow, and sand.

### Activity Enrichment

- Connect this activity with the UV-sensitive Frisbee activity. Have the students bring their sunglasses to class and test their effectiveness using the Frisbee. Place the sunglasses on the inner surface of the Frisbee and then carry it outside. Once the Frisbee has changed color, carry it back indoors and remove the sunglasses. If there is a white area in the shape of the sunglasses, then the sunglasses are effective at blocking UV radiation.
- Connect this activity with a visit to your local zoo or aquarium. Plan a sun-safe animal tour using the “SunWise Animals” resource on the SunWise website.

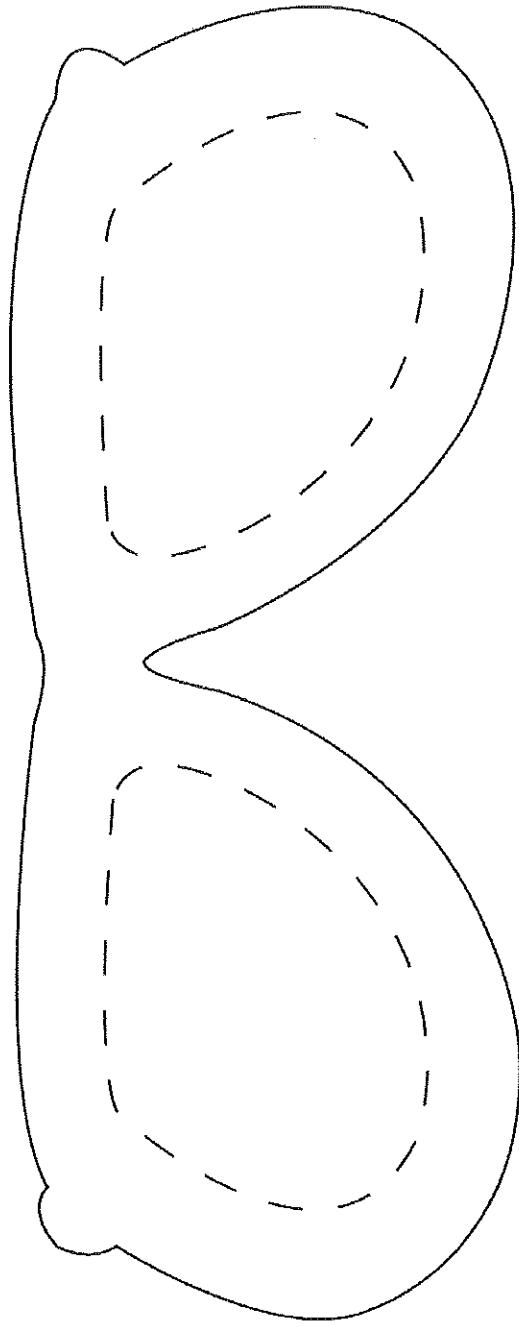
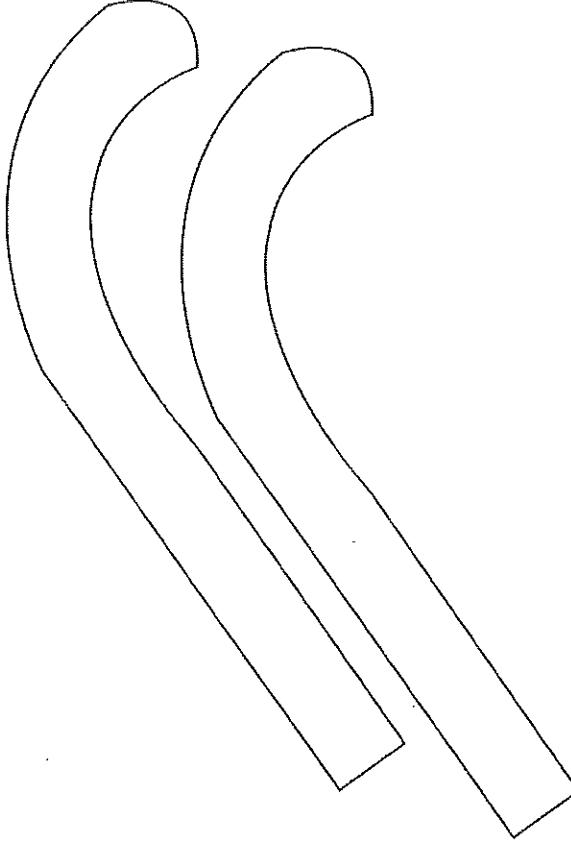


## **Wacky Paper Sunglasses**

### Supplemental

#### **Directions**

- 1 Cut the sunglasses out of your paper.
- 2 Cut out the eyepieces of your sunglasses.
- 3 Choose a color of cellophane for your eyepieces.
- 4 Glue the pieces of the sunglasses together.  
Spread glue on the eyepiece frame and glue the cellophane paper onto your sunglasses.  
Now, make your sunglasses wacky by decorating them!



## **Wacky Paper Sunglasses Supplement**

### **Estimated time**

20 minutes

### **Supplies**

Scissors

Glue

Pencil

Cellophane sheets in various colors

Crayons or other decorations

Colorful construction paper (optional)

### **Learning Objective**

The objective of this activity is to demonstrate the importance of wearing sunglasses to protect your eyes from the sun's harmful ultraviolet (UV) rays. Assess the students by asking them what they know about sunglasses and eye protection before starting the activity. Afterwards, ask what they learned from this lesson. Did it teach them anything new about cataracts and the importance of wearing sunglasses? What will they do differently now when outside?

### **Discussion**

Discuss with students the importance of wearing sunglasses. Explain that appropriate sunglasses provide 99–100 percent UV protection, which will reduce sun exposure to your eyes. Demonstrate the UV blocking power of sunglasses by using the UV-sensitive Frisbee®. Place sunglasses on the Frisbee, expose the Frisbee to UV

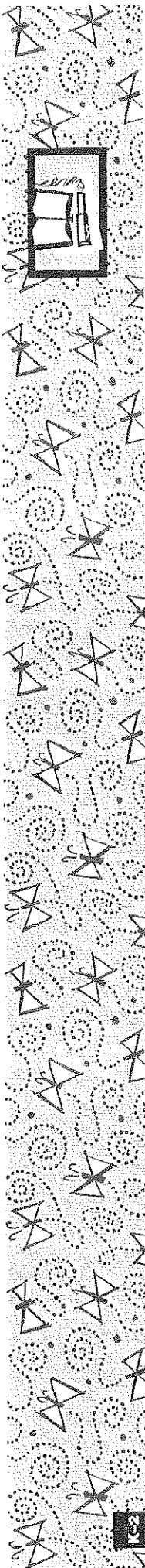
(take outside) and watch the Frisbee change color in a few seconds. Explain to the students that the sunglasses block the UV rays, thus keeping the area beneath the sunglasses from changing color. UV rays can cause cataracts and other eye damage.

Cataracts are a form of eye damage in which a loss of transparency in the lens of the eye clouds vision. Discuss with students what it would be like if their eyes were damaged or if they were blind. Ask them how their lives would be different. Next, discuss with students how their eyes help them. Ask them what they would have trouble doing or knowing if they couldn't see.

### **Directions**

If time permits, create your own pair of wacky sunglasses to show your class. You may also want to copy the sunglasses template and alter it to become a “connect the number dots” activity.

Instruct students to either cut out the sunglasses provided on the Student Page or draw and cut their own out of a colorful piece of construction paper. Next, students should cut out the eyepieces. You should have some of the cellophane pieces cut out in squares to fit the frame of the sunglasses. Instruct the students to spread the glue around the edges of the eyepiece and place each cellophane piece within the eyepiece frame area. After the glue is dry, students can decorate the rest of the glasses. Instruct students that the cellophane they are using for the lenses in the sunglasses does NOT protect against UV rays. Explain to students how to look for and read the tag found on sunglasses in the store so that they will select glasses that offer adequate protection.



**SunWise Word Search**  
Supplemental

67

Find and circle  
the Sun Wise Way.

三

TIP BATIM

## LONG SHORTS

ESTATE

PANTS

SINGTASSES

SITINGSRETTEN

EXTRA

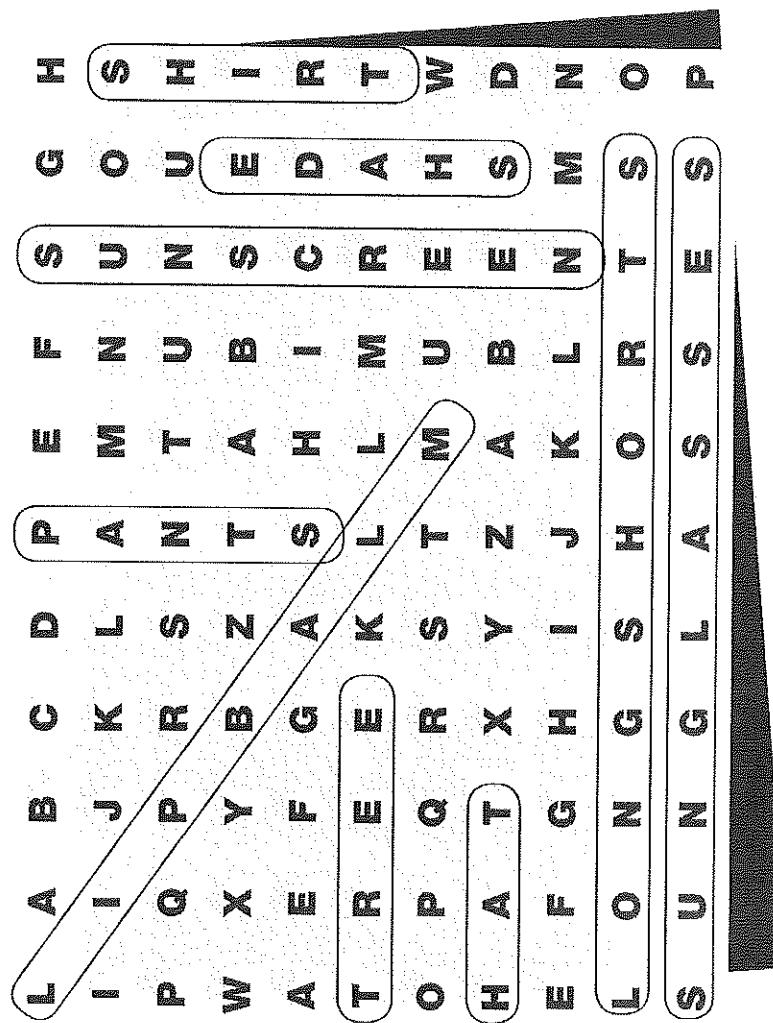
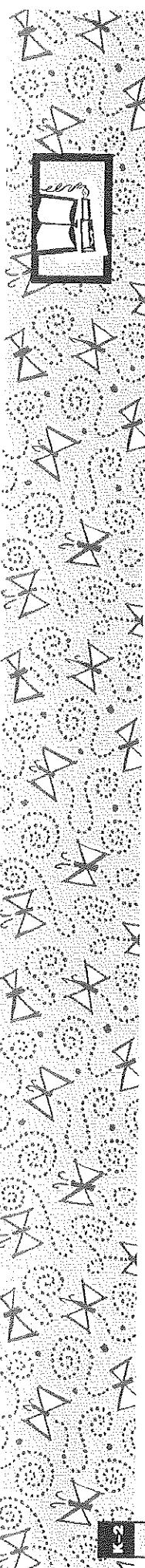
SIGHTS

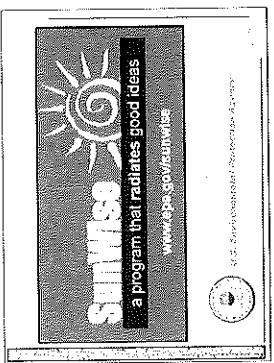
H S H I R T W D N O P  
G O U E D A F S M S S  
S U N S C R E E N T E W  
F N U B I M U B L R S S  
E M T A H L M A K O S  
P L A N T S L T Z J H L A  
D L S T A K S Y I S G L  
C R B G E R X H G G  
B J P Y F E Q T G N N  
A I P X E R P A F O D  
L Q X E R P A F O D

SunWise Word Search  
Supplemental

Word Search Works

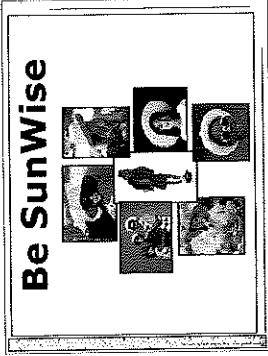
HAT LIP BALM  
LONG SHORTS  
SHIRT PANTS  
SUNGASSES SUNSCREEN  
TREE SHADE





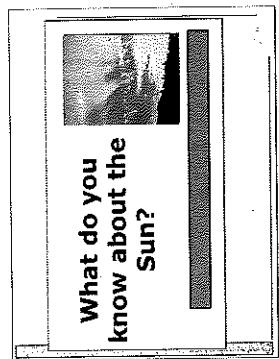
[www.epa.gov/sunwise](http://www.epa.gov/sunwise)

U.S. Environmental Protection Agency



## Be SunWise

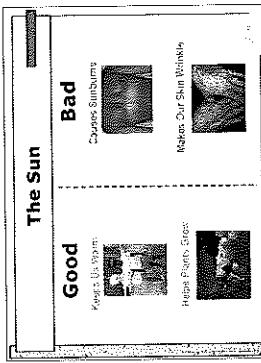
Ask the question and give students time to think about an answer. You might have them talk to a neighbor or to generate ideas. After sufficient wait time move to the next slide. Ask students to share their ideas about the sun.



What do you  
know about the  
Sun?

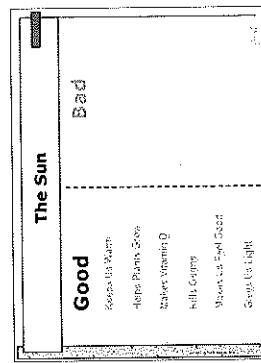
Ask students to look at the pictures and come up with a definition for the word "Sunwise." You may chart the responses and keep them posted for later reference. Tell students that they are going to receive more information about Sunwise and that you will revisit the definitions later.

1

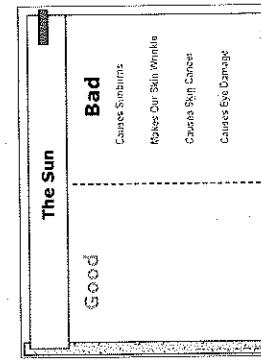


Give students ample time to generate ideas. Listen to all student responses and then tell the students know that you have pictures of a few things that show what we know about what our sun can do. Continue to mouse click until all four examples are on the screen. Ask students to look at the four pictures that you have selected and to put them into two categories. After students have shared their ideas for categories, mouse click again to show the text Good and Bad on the side and ask students why you have selected these categories. Encourage students to explain their answers to help them understand why sunburns and wrinkles are not good for our skin (for background information go to the Sunwise Web site: [www.epa.gov/sunwise/underhealth2.htm](http://www.epa.gov/sunwise/underhealth2.htm)). Use the next two slides to expand on the list in each category. Have students participate by filling in the blank to finish the words. Hopefully some of the responses were already generated by the students.

2



3



6

4



### The Sun...

...produces light and warmth but also ultraviolet (UV) radiation. UV radiation cannot be seen or felt.

It is UV radiation, not the sun that causes changes to skin color, damage to eyes, and other bad health effects.

Point out that the Sun also produces ultraviolet (UV) radiation that can be potentially harmful to us. Stress (as much as possible for this age group) that it is UV radiation, not the light or warmth that causes the harmful effects.

### The Sun...

...is necessary for life on Earth.

It helps plants to grow, and provides warmth and light.

Sunlight also helps people to be happy and healthy.

Summarize information about the sun...

For additional information go to the Sunwise Web site ([www.epa.gov/sunwise](http://www.epa.gov/sunwise)) or the Sunwise kid pages ([www.epa.gov/sunwise/kids.html](http://www.epa.gov/sunwise/kids.html))

7

### How Can You Become SunWise?

Again ask students to think about the definition of Sunwise that they formed at the start of the lesson. Tell them that you will now go over some specific ways to become SunWise.

[www.epa.gov/sunwise/actionssteps.html](http://www.epa.gov/sunwise/actionssteps.html)

### UV radiation is not always the same – it changes based on...

- » Time of day
- » Time of year
- » Location
- » Altitude
- » Weather
- » Reflection
- » Ozone Layer

(General UV Information: [www.epa.gov/sunwise/uvindex.html](http://www.epa.gov/sunwise/uvindex.html))

Give students example of each variable that fits with their experiences such as:

Time of day: early morning vs. late at night (Note: Remember the shadow rule: Watch Your Shadow, No Shadow, Seek Shade!)

Time of year: summer vs. winter

Location: black top vs. under the shade of a tree

Altitude: in the mountains

Weather: cloudy vs. clear

Reflection: snow and water

Ozone layer: is thinning and offering less protection against harmful UV rays

Until recently, chlorofluorocarbons (CFCs) were used widely in industry and households as refrigerants on air conditioners, and solvents. When exposed to the sun's ultraviolet rays, they release chlorine, which attacks ozone. ([www.epa.gov/sunwise/ozone.htm](http://www.epa.gov/sunwise/ozone.htm))

Information on the UV Index and why it varies: ([www.epa.gov/sunwise/products/stratosphere/uv\\_index/uv\\_information.html](http://www.epa.gov/sunwise/products/stratosphere/uv_index/uv_information.html))

9

### Sun Safety Action Steps

Limit Time in the Midday Sun	Wear Sunglasses
Seek Shade	Use Sunscreen
Cover Up	Avoid Tanning Beds
Wear a Hat	Watch for the UV Index

As you read and review each Action Step with the students ask them to think of the action steps that are part of their routine.

The UV Index is a prediction (based on a mathematical equation available at [www.epa.gov/sunwise/uvcalc.htm](http://www.epa.gov/sunwise/uvcalc.htm)) of the UV Index level, which can be used as a tool (much like a thermometer is a tool for temperature) for reminding people how to protect themselves from overexposure to UV radiation. The higher the UV Index, the greater the possibility of getting sunburned. Sunburn increases the risk of skin cancer and can lead to other health problems. Ask students to think of ways that people are taking special care to protect themselves from the UV radiation levels? Students should remember the use of sunglasses, wide-brimmed hats and clothing.

### How do we measure UV radiation levels?

We use the UV Index Scale. Reported on a scale of 1 -11+. Take special care when the UV Index is 5-6 or higher.

For additional information go to the Sunwise Web site ([www.epa.gov/sunwise](http://www.epa.gov/sunwise)) or the Sunwise kid pages ([www.epa.gov/sunwise/kids.html](http://www.epa.gov/sunwise/kids.html))

12

11

10



**Sun Safety Action Steps**

**Limit Time in the Midday Sun**



The sun's rays are strongest between 10 a.m. and 4 p.m. Limit exposure to the sun during these hours.

13

**Sun Safety Action Steps**

**Use Sunscreen**



Use sunscreen of SPF 15+ generously and reapply every 2 hours, or after working, swimming, playing, or exercising outdoors.

16

**Sun Safety Action Steps**

**Seek Shade**



Staying under cover is one of the best ways to protect yourself from the sun. But remember, shade structures do not offer complete sun protection.

14

**Sun Safety Action Steps**

**Wear a Hat**



A hat with a wide brim offers good sun protection for your eyes, ears, face, and the back of your neck.

17

**Sun Safety Action Steps**

**Cover Up**



Wearing long sleeves and long pants is a good way to protect your skin from the sun's UV rays.

15

**Sun Safety Action Steps**

**Wear Sunglasses**



Sunglasses that provide 99 to 100 percent UV protection will greatly reduce sun exposure that can lead to eye damage.

18



**Sun Safety Action Steps**

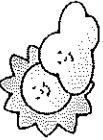
## Avoid Tanning Parlors



The light source from sunbeds and sunlamps damages the skin and unprotected eyes. It is a good idea to avoid artificial sources of UV light.

19

**True or False?**



You can get sunburned on a cloudy day.

22

**Sun Safety Action Steps**

## Watch for the UV Index



The UV Index provides important information to help you plan your outdoor activities in ways that prevent overexposure to the sun. The UV Index is issued daily across the United States.

20

**True or False?**



You can get sunburned even on a cloudy day.

**TRUE**

Even on a cloudy day, many rays of the sun's rays can still reach the Earth's surface.

23

## Are You SunWise?



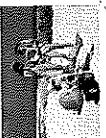
Ask students if they feel that they are Sunwise and if not, what more could they do to become Sunwise. Have students brainstorm on how this might happen. Set time aside for four true/false questions as a formative evaluation tool to check for understanding.

21

**True or False?**



You only need to wear sunscreen when you are at the beach.



You only need to wear sunscreen when you are at the beach.

24



**True or False?**



You do not have to be sunbathing to get a damaging dose of the sun. Every day exposure to the sun without sunscreen can damage your skin.

**FALSE**

Check for understanding by asking students what other action steps they could do along with applying sunscreen.

25

**True or False?**



My skin doesn't get sunburned so I don't need to worry about protecting myself from overexposure to the sun.

26

**True or False?**



Sunscreen with an SPF of LESS than 15 is enough to protect my skin.

26

**True or False?**



Skin cancer and other bad effects from the sun can affect any person, regardless of skin color.

**FALSE**

29

**True or False?**



Use sunscreen with SPF 15 or higher. Remember to put on enough sunscreen to protect your skin.

**FALSE**

27

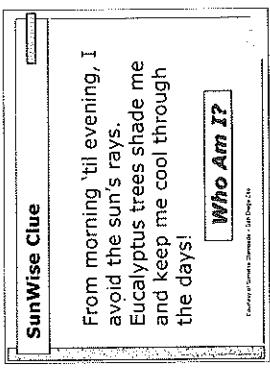
**Do You Know Who I Am?**



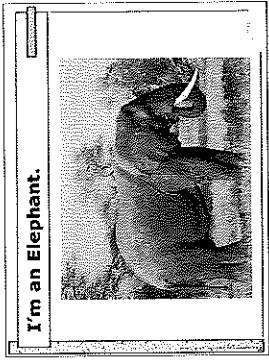
use the next six slides as a fun extension activity with students.

30





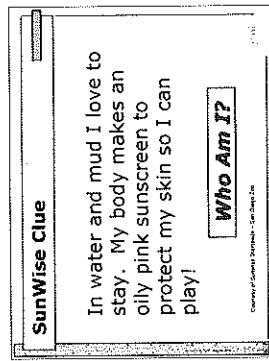
31



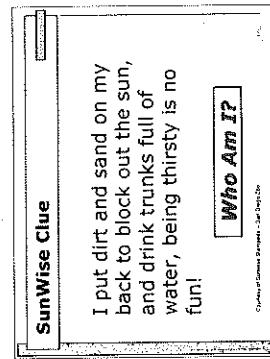
34



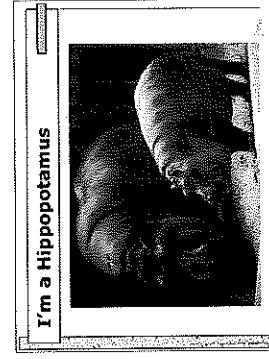
32



35



33



36



**SunWise Clue**

My black eye ring  
"sunglasses" protect my  
eyes from the sun's glare.  
I'm the coolest "kat"  
around with a social flare.

**Who Am I?**

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You might want to use Timon (Pumbaa's buddy) from The Lion King as a print. Timon is the hyperactive meerkat with a mean streak.

37

**SunWise Clue**

I'm a Turtle.

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**I'm a Meerkat.**

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38

**SunWise Riddle**

Knock, Knock, Who's there?  
Anita. Anita who?  
I "nita" another bottle  
of SPF 15 sunscreen!

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As a follow up activity ask students to construct their own riddles and share with the class.

39

**Whatever You Do... Be SunWise!**

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**SunWise Clue**

I'm low on the ground and  
I move real slow. My  
clothing protects me from  
the sun wherever I go.

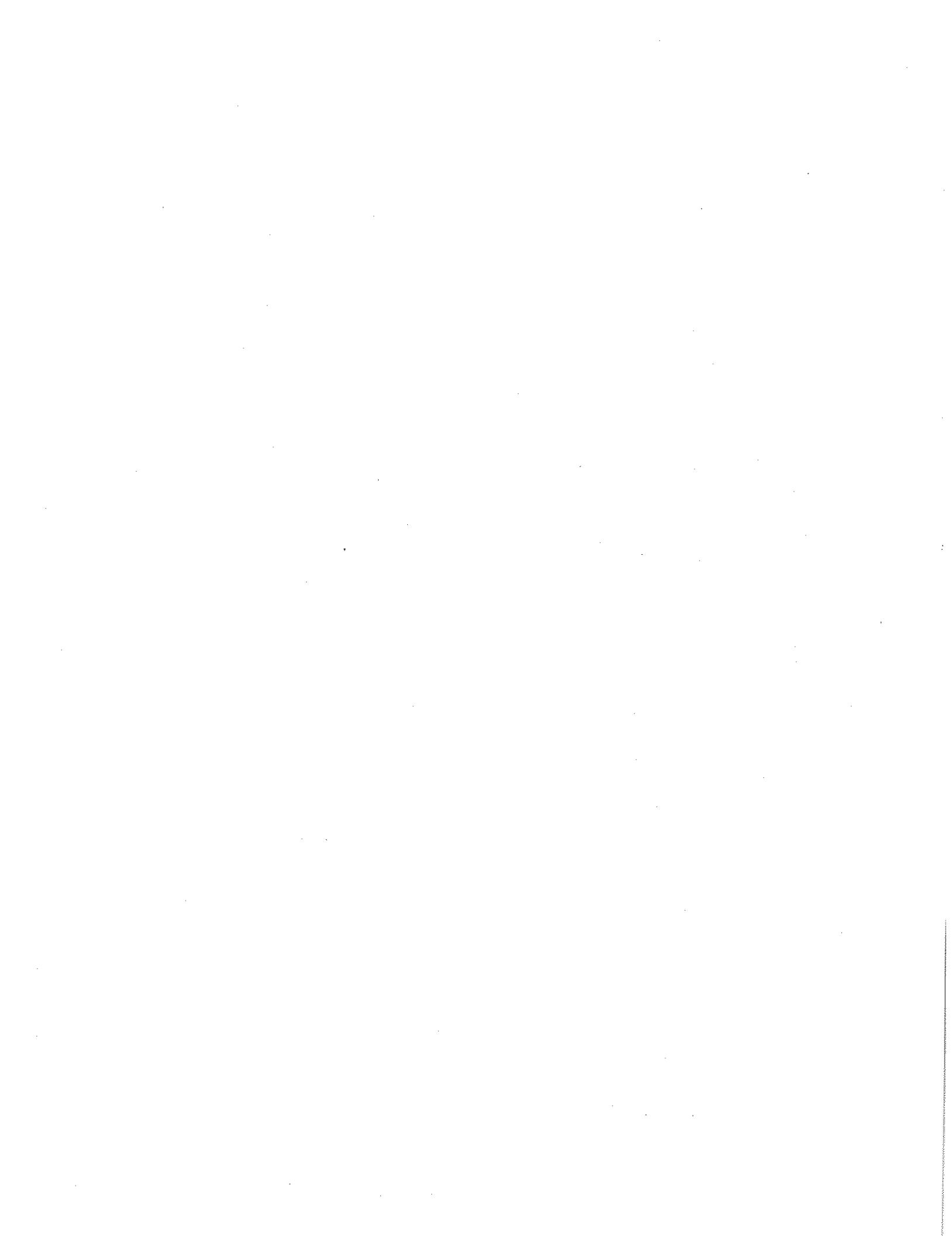
**Who Am I?**

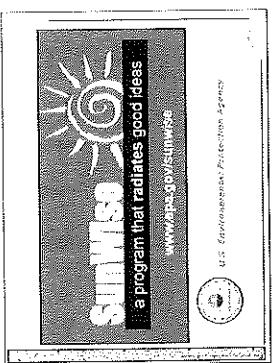
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42

40

41







# how to use the SunWise Toolkit



a program that radiates good ideas

A Partnership Program of the U.S. Environmental Protection Agency  
[www.epa.gov/sunwise](http://www.epa.gov/sunwise)

HOW TO USE THE SUNWISE TOOL KIT

# How to Use the SunWise Tool Kit

**HOW TO**

The SunWise Program is designed to help educators raise sun safety awareness by addressing the science of the sun, the risk of overexposure to its ultraviolet (UV) radiation, and what students and their families can do to protect themselves from overexposure. This Tool Kit has been designed for K–8 educators from all over the United States and its territories. It will be used by schools with diverse requirements, curricula, and student bodies. In addition, across our nation, seasons, climate, and geography can differ dramatically. With so many variables, SunWise recognizes the need for maximum flexibility and encourages educators to adapt the Tool Kit components to meet their specific needs.

The time commitment necessary to implement SunWise can be minimal, as the activities can be easily integrated into existing curricula or completed as supplemental activities. It is the educator's choice as to how much time is invested. Using this Tool Kit and educating children about sun safety now can make a difference in the future health of children.

We envision the SunWise Tool Kit as a dynamic and continuously evolving learning tool. Over the course of its life it will be updated with additional activities and other learning aids focused on sun safety and the environment. We encourage your feedback and ideas.

## Tool Kit Organization

The Tool Kit is divided into the following ten sections:

### Introduction

### How to Use the SunWise Tool Kit

#### K–2 Activities

#### 3–5 Activities

#### 6–8 Activities

#### UV Meter Activities

#### SunWisdom

#### Policy Information

#### Resources

#### SunWise Materials

The activities are found on cards that are color-coded by grade level: (K–2) yellow; (3–5) turquoise; (6–8) lime green. Each activity contains subject area icons. The activities are designed to engage your students while ensuring that a sun safety message is being transmitted in a manner suitable to their skills and abilities.

For grades K–2, we have provided activities for students who are beginning to read and write, learning introductory scientific concepts, and are performing more complicated mathematics. These activities range in length of time and complexity, stimulating student interest while conveying the appropriate sun safety messages.

For grades 3–5, we have provided activities for students who are able to read and write more fluently, are familiar with scientific concepts, and are performing more complicated mathematics. These activities range in length of time and complexity, stimulating student interest while conveying the appropriate sun safety messages.



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For grades 6–8, we have provided activities for students who are able to read and write fluently, have worked with scientific processes, and are performing complicated mathematics. On average, these activities will be longer and more complex, but just as enjoyable as the others. These activities will encourage the use of higher order thinking skills.

The activity pages are double-sided. The *Student Page* is easily photocopied while the *Teacher Page* is intended to be kept as a reference and notes page. These pages are organized by grade level and subject matter. Keep in mind that activities might fall into more than one subject area. On each *Teacher Page*, you will find a section called *Learning Objectives*. In this section you will see how the educational messages about science, risk, and/or prevention are integrated into the activity and what we hope your students will learn. We know it is important for teachers to assess what their students have learned; therefore, we have included *Assessments* in all the activities. Assessments serve as a measurement of the students' understanding of each activity's learning objectives.

Some of the activities contain classroom *Discussion Points*. As an integral part of the learning process, these discussion points will help you focus your students on the lessons' messages, which will assist them in relating what they have learned in the classroom to their behavior outside the classroom.

*Supplemental Activities* are short and meaningful assignments that students can complete on their own. These activities are brief, yet worthwhile, because they ultimately teach a very important lesson—sun safety.

*Matrices of the Academic Standards* are provided on the back of each grade level divider to help you find which educational criteria an activity meets. In developing these activities, an education expert verified that each activity meets the proper national standards for science, mathematics, health, physical education, social studies, and English language arts.

The *SunWisdom* section contains fact sheets and other materials that will give you the background information necessary to easily and thoroughly implement the SunWise Program.

The *Policy Information* section provides guidance for making changes outside the classroom. These changes will greatly help to reduce risks, reinforce SunWise learning, and increase sun safety.

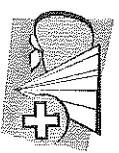
*Resources* are an indispensable part of any classroom and are provided to help you enrich the SunWise activities.

In keeping with the intent of making these lessons hands-on and fun, the *SunWise Materials* section includes the UV-sensitive Frisbee®, which will help reinforce the lessons you have taught. The Tool Kit also contains a poster for mid-level students, and a story book and activity book for elementary students. These materials are available in both English and Spanish. Finally, to reward your students for their participation in the SunWise Program, we have also created the easily photocopied *Certificate of Sun.Wisdom*.

At the end of this section you will find cards that list the educational standards used in the development of this Tool Kit.



# *Educational Standards*



## **Health**

[www.cdc.gov/healthyyouth/sher/standards/](http://www.cdc.gov/healthyyouth/sher/standards/)  
The health activities were reviewed according to the National Health Education Standards.

### **Standard 1**

Students will comprehend concepts related to health promotion and disease prevention to enhance health.

### **Standard 2**

Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.

### **Standard 3**

Students will demonstrate the ability to access valid information and products and services to enhance health.

### **Standard 4**

Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.

### **Standard 5**

Students will demonstrate the ability to use decision-making skills to enhance health.

## **Standard 6**

Students will demonstrate the ability to use goal-setting skills to enhance health.

## **Standard 7**

Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.

## **Standard 8**

Students will demonstrate the ability to advocate for personal, family, and community health.



## **Physical Education**

[www.shapeamerica.org/standards/pe/](http://www.shapeamerica.org/standards/pe/)

The physical education activities were reviewed according to the National Physical Education Standards.

## **Standard 1**

Demonstrates competency in a variety of motor skills and movement patterns.

## **Standard 2**

Applies knowledge of concepts, principles, strategies and tactics related to movement and performance.





### Standard 3

Demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

### Standard 4

Exhibits responsible personal and social behavior that respects self and others.

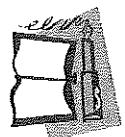
### Standard 5

Recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.



### English Language Arts

[www.corestandards.org/ELA-Literacy](http://www.corestandards.org/ELA-Literacy)



The English language arts activities were reviewed according to the Common Core English Language Arts Standards. The ELA Standards are divided into the following strands:

Reading: Literature (RL)

Reading: Informational Text (RI)

Reading: Foundational Skills (RF)

Writing (W)

Speaking and Listening (SL)

Language (L)

Each strand has a strand-specific set of College and Career Readiness Anchor Standards that are identical across all grades, and each grade also has grade-specific standards that correspond to the anchor standards.

### Mathematics

[www.corestandards.org/Math](http://www.corestandards.org/Math)

The math activities were reviewed according to the Common Core Math Standards.

Expressions and Equations

Geometry

Measurement and Data

Number Operations in Base Ten

Number Operations in Fractions

Number Sense

Operations and Algebraic Thinking

Ratios and Proportionality

Statistics and Probability

### Science

[www.nextgenscience.org/next-generation-science-standards](http://www.nextgenscience.org/next-generation-science-standards)

The science activities were reviewed according to the Next Generation Science Standards. The Standards are comprised of the following disciplinary core ideas:

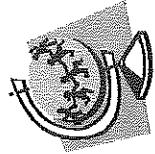
Physical Sciences

Life Sciences

Earth and Space Sciences

Engineering, Technology, and Applications of Science





## Social Studies

[www.socialstudies.org/standards](http://www.socialstudies.org/standards)

The social studies activities were reviewed according to the National Council for the Social Studies (NCSS) standards. The themes that form the framework of the social studies standards are:

### Standard 1

Culture

### Standard 2

Time, Continuity, and Change

### Standard 3

People, Places, and Environments

### Standard 4

Individual Development and Identity

### Standard 5

Individuals, Groups, and Institutions

### Standard 6

Power, Authority, and Governance

### Standard 7

Production, Distribution, and Consumption



## Standard 8

Science, Technology, and Society

## Standard 9

Global Connections

## Standard 10

Civic Ideals and Practices

