

Grade 3	Lesson: The SUN Sun and Heat Day 1	Reference to English Interconnections lesson The Sun Pg. 113
Science Standard(s): Standard 5.1 The Earth, Moon, Sun and Heat		
Content Objective(s):	Language Objective(s):	
Students will compare the temperature of thermometers in the sun and the shade during the experiment in groups of three. <i>I can compare the temperature of the thermometers in the sun and the shade during the experiment in my group.</i>	Students will use the comparative form of adjectives to report results of the experiment to the rest of the class. <i>I can use the correct form of comparison words while reporting the results of the temperature experiment to the class.</i>	
Essential Questions: What impact does lack of sunlight have on living things?	Academic Vocabulary: Listen: heat, shade Speak: light, temperature, shade, heat Read: sun, shade, heat, 5 minutes, 10 minutes, begin time temperature Write: Sentence Frames: The sun provides _____. The temperature was ____ (hotter/colder)in the ____ and _____ (hotter/colder)in the ____.	
Materials: • SUN/SHADE Experiment Sheet • Thermometers (2 per group) • Pencils	Language and Word Wall: sun, warm, cold, hot, sunny, shady, thermometer, coldest, hottest, gases	
Lesson:		Instruction time: 80mins
<p>Opening: (7 minutes)</p> <ul style="list-style-type: none"> • http://video.nationalgeographic.com/video/science/space-sci/solar-system/sun-101-sci/ <p>T: “To start our lesson today we are going to watch a video. I want you to pay close attention to this video. When you finish watching it, you will tell your neighbor 3 things about the sun.”</p> <ul style="list-style-type: none"> • Watch a video of the sun. Turn off the volume and explain the information in the target language. <p>T: “That is the sun! Tell your neighbor 2 things you learned or know about the sun.”</p> <p><i>S: will turn to their neighbor and tell 3 things about the sun, “I learned the sun is gas” or “I learned the sun is light” or “I learned the sun is energy”</i></p> <p>T: “Let’s make a list of the things you know about the sun.</p> <ul style="list-style-type: none"> • Write the list on the board. <ul style="list-style-type: none"> ○ The sun is yellow. ○ The sun is round. ○ The sun is hot. ○ The sun is a star. <p>T: “One of the things on our list is the sun is hot. Does the heat of the sun affect us on earth? Think about it, what does the sun do for us? Turn to your neighbor and ask them “What does the sun do for us?”</p> <p><i>S: will turn to their neighbor and ask, “what does the sun do for us?” The other student will answer.</i></p> <p>Introduction of New Material (Direct Instruction): (7 Minutes)</p> <p>T: “The sun is very important to us. Let’s add some more things about the sun to our list.”</p> <ul style="list-style-type: none"> ○ The sun is 93 million miles away. ○ The sun is a great ball of HOT GASES! ○ The sun gives off huge amounts of heat. ○ The sun gives off huge amounts of light. ○ The sun heats and lights the earth. <p>T: “Back to my question, what does the sun do for us? Tell your neighbor 2 things the sun does for us on earth.”</p> <p><i>S: will discuss with their neighbor 2 things the sun does for us on earth, “it provides light” or “the sun provides heat.”</i></p> <p>T: “Raise your hand and tell me one thing the sun provides for us.”</p> <p><i>S: will raise their hand and tell the teacher 1 thing the sun provides earth with.</i></p> <p>T: “Raise your hand and tell me the second thing the sun provides us with.”</p> <p><i>S: will raise their hand and tell the teacher the other thing the sun provides earth with.</i></p> <p>T: “Yes, the sun provides the earth with HEAT and LIGHT! Let’s say it together. ‘The sun provides the earth with heat and light.’”</p> <p>T: “I have another question for you. If the sun heats the earth, is it the same temperature everywhere? Let’s look at the map/globe. Is it the same temperature here in Utah as it is in Mexico? Thumbs up if it is the same temperature, thumbs down if</p>		

it is different temperatures.”

S: *will show thumbs up or thumbs down.*

- Compare locations and temperatures multiple times before moving on.

T: “Today is a sunny day. I want you to think, when I go outside will I be hotter sitting on the swing or under the tree? What is the difference between the swing and the tree?”

S: *“One is in the sun. The other is in the shade.”*

T: “You are correct, the swing is out in the sun and under the tree is in the shade. Will it matter if we are in the shade or in the sun? Will one of those be cooler and the other hotter?”

S: *“The shade will be cooler. In the sun it is hotter.”*

T: “Where else can we take the temperature?”

- Make a list of different sunny and shady locations with the students.

Experiment: (18 minutes)

T: “Experiment time! In just a minute we are going to separate into groups of 3, each person will be given a responsibility. Student #1 will collect the materials- record keeping sheet and 2 thermometers. Student #2 will record the results of the experiment. And after you decide as a group where you want to put the thermometers, Student #3 will place thermometers where you want them to go. Make sure one thermometer is in the sun and the other is in the shade.”

T: “Let’s review, what does Student #1 do?”

S: *will respond, “collect materials.”*

T: “What does student #2 do?”

S: *will respond, “record results.”*

T: “What does student #3 do?”

S: *will respond, “places the thermometers.”*

T: “What do you all do together?”

S: *will respond, “decide where to put the thermometers.”*

T: “Good, after you put the thermometers where you want them, 1 in the sun and 1 in the shade, you will need to take their temperature 3 times. The first time is right when you get the materials before we go outside. The second time will be when I blow my whistle 5 minutes after you put the thermometers in their places. The third time will be when I blow my whistle again 5 minutes after that. So you will take the temperature when we are still in the classroom and then when I blow the whistle.”

- Some students might need to review how to use a thermometer, if that is the case, review it with the whole class. Then check the students as they take the temperature the 1st time to make sure they all do it correctly.

T: “I think we are almost ready. I have already separated you into groups of three. They are written at the top of each record-keeping sheet. Next to your name you will find #1, #2, or #3 to show what your job is during the experiment. When I call your names you may come and get your record keeping sheet and get started.”

S: *will get their papers, collect their materials, decide on locations and take the first temperature.*

T: “Has everyone written down the temperature on their paper?”

- Teacher can check the papers very quickly.

T: “Good, we are ready to go! Let’s go outside and put our thermometers in their locations.”

- The class will go outside and perform the experiment.
- While the students are waiting to take the temperature let them play on the playground.
- Return to the classroom and have each group share their temperatures for their areas. The teacher records this information on the board.

T: “Tell us where you took the temperature?”

S: *will respond, “We took the temperature _____ and _____.”*

T: “What were the temperatures?”

S: *will respond, “The temperature was _____ in the shade (or location) and _____ in the sun (or location).”*

T: “Using that example turn to a neighbor and say which one was hotter and which one was colder. Use our sentences frame, “it was hotter in the _____ and colder in the _____.”

- Repeat the use of the sentence frame with each groups locations.
- Make sure each group has a chance to present and the teacher will record all the information.
- After sharing, have students rank the temperatures in order from hottest to coldest.

T: “Look at all these temperatures. Let’s put them in order from coldest at the bottom and hottest on the top.”

T: “Do you see any patterns as in these results? Tell your neighbor.”

S: *will respond, “It was hotter in the sun and colder in the shade.”*

Closing: (8 minutes)

T: “Let’s review. Tell me 3 things about the sun.”

S: *will respond with three things about the sun.*

T: “Good, question #2, what does the sun provide for us?”

S: will respond, “heat and light.”

T: “Yes, the sun gives us heat and light. Is it hotter in the shade or in the sun?”

S: will respond, “it is hotter in the sun.”

T: “Yes again! Last question, we know the sun gives us heat, can we get heat from anything else? Think about it, tell your neighbor.”

S: will turn to their neighbor and tell them the other places we can get heat.

Assessment:

Check Experiment Record-Keeping Sheet

Observe students’ group and individual work.

Extra Ideas:

- When talking about temperature locations you can use weather.com to find the temperatures.
- Chocolate Experiment:
 - Let’s melt chocolate!
 - To help students better understand that temperatures in the sun are higher than those in the shade, students will conduct another experiment, testing how long it will take for chocolate to melt when it is placed in the sun and in a shady place (make sure it is a sunny day).
 - Give each student a timer and two pieces of thin chocolate. Ask students to place two pieces of chocolate in two different places—one in the sun and one in the shade.
 - Have students predict how long they think it will take for the chocolate to melt. Record their predictions in their “My Energy Book” (p.4).
 - Students record the actual amount of time it took the chocolate to melt in their “My Energy Book” (p.4).
 - Have students tell why chocolate melted faster when it was placed in the sun.

Student #1: _____ (materials)

Student #2: _____ (recorder)

Student #3: _____ (place thermometers)

Is it HOTTER in the SUN or in the SHADE?

	Sun	Shade
Begin Time Temperature		
After 5 Minutes		
After 10 Minutes		