

## SNWA Goal 1 Objective 1.6

### CCSD Curriculum Essentials Framework

#### *Science*

*It is expected that students will:*

- (2)1.7 describe an object as hot or cold. WCSD 3.2.1
- (2)3.2 investigate and describe how changes happen to many things.
- (2)3.2 investigate and describe how the sun warms the land, air, and water. (First grade standard- WCSD 12.1.1)
- (2)3.4 investigate and describe how weather changes from day to day and throughout the year. (First grade standard- WCSD 12.1.1)
- (2)4.5 describe how people live in different places in different ways. WCSD 17.2.1



## **Part One**

### **Purpose:**

This activity will introduce students to changes that occur because of weather.

**Time:** part one, 60 minutes; part two, 60 minutes

### **You will need:**

- two thermometers

### **Each student will need:**

- drawing paper and crayons

## **Introduction**

1. Tell students that in January you read in the newspaper about North Dakota. The article talked a lot about the cold weather they were having. There was snow and ice, and everyone was wearing coats and hats and mittens. (If possible, find North Dakota on a map and show students a picture of a snowy winter scene.)



### *Making Discoveries*

2. You were thinking about how our weather is different from North Dakota, and you were wondering if the class could help you describe the weather here, in the Las Vegas Valley.
3. Allow time for students to share their ideas about today's weather, as well as the past few days. Take a short walk outdoors to look at the sky, feel the breeze, etc. Ask students to record their observations in their science notebooks.
4. As you return, place a thermometer outside near your classroom.
5. Back in the classroom, take time for students to share their observations. Record their responses and use them to lead a discussion contrasting the two different types of weather.
6. Explain that weather often affects how people live: the clothing they wear, what their homes are like and what they do for fun. Ask students, "What kind of fun things can you do when it snows? When it is hot?"
7. Distribute drawing paper. Ask students to fold the paper in half and draw pictures of themselves dressed the way they would be dressed in North Dakota in the winter on one half of the paper. Ask them to use the other half to draw pictures of themselves the way they usually dress in the Las Vegas area.
8. When students have completed their pictures, post them side by side. Use the pictures to lead a discussion contrasting the two styles of dress. Ask, "Why do we dress differently for cold weather than we do for warm weather?" Lead this into a discussion of the difference in air temperature.
9. Give a pair of students a thermometer. Ask them to read the temperature (assisting as needed). Write the classroom temperature on the board and label it "inside temperature." Get the thermometer you placed outside your classroom earlier. Ask a volunteer to read the temperature. Record it on the board next to the inside temperature and label it.

### *Closing*

10. Ask students to find the difference between the two temperatures recorded on the board. Why do they think this might be? If the outside temperature is greater, ask the students where they think the heat came from (the sun). If the outside temperature is lower, ask the students why they think that happened (the sunlight may be blocked by clouds, the heat may be on in the classroom, etc).

### **Part Two**

#### **Purpose:**

Students will compare temperatures of air, soil and water in full sun and in shade to begin a discussion of how that affects our lives in Southern Nevada and how we adjust to life in the desert.

#### **You will need:**

- 2 containers (glass or plastic pans or bowls) of dirt
- 2 containers (glass or plastic pans or bowls) of water
- 6 thermometers
- written directions cut and placed in a bag (see step #2 of the introduction below)
- transparency map of Southern Nevada (see Grade 2 & 3 - Southern Nevada)

#### **Teacher note:**

*Before beginning this part of the activity, find a place around the school where your students may safely place the items for this inquiry.*

### **Introduction**

1. Tell students that heat is what makes the weather. Tell students that heat from the sun warms the land and the water. The land and water warm the air. Today the class is going to investigate the idea that the sun's heat warms the land and water.
2. Divide students into six groups. Have a volunteer from each group draw one of the following slips of paper from a bag. The group is to choose where to place their thermometer, following the directions on the paper.
  - Hang the thermometer in the sunshine.
  - Hang the thermometer in the shade.
  - Place the thermometer in the dirt and put the pan of dirt in the sunshine.
  - Place the thermometer in the dirt and put the pan of dirt in the shade.
  - Place the thermometer in the water and put the pan of water in the sunshine.
  - Place the thermometer in the water and put the pan of water in the shade.

#### **Teacher note:**

*For comparison, you might also hang a thermometer in the classroom.*

## Desert Heat (cont.)

3. Take the class outside. Discuss with the students acceptable sites for placing their thermometers. Allow no more than 5 minutes for each group to determine where to place their thermometer. Caution students to work carefully with thermometers, as they are made of glass and contain mercury.
4. Each member of the group is to record their set-up and where it is located (approximately) with pictures and labels in his/her science notebook. Each student should record the starting temperature and time, comparing with group members so that they agree.
5. Returning to the classroom, ask groups to use a marker to record the starting temperatures on a chart like the following, or on the transparency provided (see Grade 2 - Temperatures). Write the starting time at the top of the chart.

TEMPERATURES					
Starting Time:					
	Starting Temperature	Temp. After 1 Hour	Change in Temperature?	Temp. After 2 Hours	Change in Temperature?
Hanging in sunshine					
Hanging in shade					
In dirt in the sunshine					
In dirt in the shade					
In water in the sunshine					
In water in the shade					

6. After about an hour, allow students to return to their set-ups to record the temperature in their notebooks again.
7. Returning to the classroom, transfer each group's data to the class chart.
8. Ask students what they notice about the temperature. Did it go up or down? How do they know? Using one group as an example, find and record on the class chart the change in temperature. Ask each group to find the difference in the temperature (if any).
9. Allow a few minutes for all groups to do this and enter their data on the chart.
10. What do students notice by looking at the chart?
11. After one more hour, students should return to their set-ups, take and record a third temperature reading, then bring their set-ups back to the classroom.
12. Have students share their data and enter it on the chart.

### **Conclusion**

13. What do students notice about the data now? What conclusions are they able to make?

### **Teacher note:**

*Water takes longer to heat and cool than earth. Earth takes longer to heat and cool than air.*

14. Where could you go on a very hot day in Las Vegas to cool off? Identify Las Vegas, Lake Mead and the Colorado River on the transparency map (see Grade 2 & 3 - Southern Nevada from the welcome.pdf). Which one of these places would be cooler? Why do you think so? (Be sure to clarify that only the temperature inside the water might be cooler. The air temperature in these places might be about the same.) Distribute copies of the same map for students to color and label.

### **Extension**

Continue to take temperature readings once you have brought the set-ups back into the classroom to notice differences in cooling times. Use data from the class chart to create graphs.

Word Bank

*The teacher should introduce or review the following vocabulary with the students within the context of this lesson.*

**temperature:** the degree of heat or cold

**thermometer:** an instrument used to measure temperature

**weather:** conditions of heat, cold, wetness, dryness, clearness, cloudiness, etc.



TEMPERATURES						
Starting Time:	Starting Temperature	Temp. After One Hour	Change in Temperature?	Temp. After Two Hours	Change in Temperature?	
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