South Carolina Temperature in Degrees Fahrenheit

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Overview

This lesson is a discovery lesson designed to introduce third grade students to thermometers and enhance their understanding of the climate regions in South Carolina. The students will use the maps of South Carolina average temperature and interpret the given information as well as use hands on measurement skills to read the degrees Fahrenheit on a thermometer.

Background Information

This lesson will be taught to the students after they have learned the regions of South Carolina. The students are familiar with maps, map legends and reading numbers. The majority of third grade students have not ever used a thermometer before and they enjoy observing the changes in degrees Fahrenheit when placed in different temperatures of water.

Connection to Curriculum

This geography lesson is connected to mathematics measurement standards.

South Carolina Social Studies Content Standards

- 3-1: The student will demonstrate an understanding of places and regions and the role of human systems in South Carolina.
    - 3-1.1 Identify on a map the location and characteristics of significant physical features of South Carolina, including landforms; river systems such as the Pee Dee River Basin, the Santee River Basin; major cities; and climate regions.

Literacy Elements

F. Ask geographic questions: Where is it located? Where is it located? Why is it there? What is it significant about its location? How is its location related to that of other people, places, and environments?

I. Use maps to observe and interpret geographic information and relationships.

L. Interpret calendars, time lines, maps, charts, tables, graphs, flow charts, diagrams, photographs, paintings, cartoons, architectural drawings, documents, letters, censuses, and other artifacts.

South Carolina Math Content Standards

- Standard I. Understand measurable attributes of objects and the units, systems, and processes of measurement.
    - Expectation B: Understand the need for measuring with standard units and become familiar with standard units in the customary and metric system.
        - 2. Use metric and U.S. customary units to measure length, liquid volume, temperature, and weight/mass.
- Standard II. Apply appropriate techniques, tools, and formulas to determine measurements

- Expectation B. Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles
    - 3. Read temperature to the nearest degree from a Celsius Thermometer and from a Fahrenheit Thermometer

Grade Range
This lesson could be modified to be appropriate for grades 3-5.

Time
50 minutes

Materials Needed:
1. *South Carolina: An Atlas*
2. 6 large thermometers
3. ice
4. warm water
5. 6 thermoses
6. 6 coolers
7. 24 500mL beakers
8. 6 towels

Note: If you do not have 6 coolers and thermoses the students can share these items among the groups.

Objectives
- Students will identify the climate regions of South Carolina.
- Students will discuss why the climate differs in different regions of the state.
- Students will be able to accurately read a Fahrenheit thermometer.
- Students will work cooperatively in groups.

Procedures
1. Put students in prearranged groups of three or four (keeping in mind learning levels) and give each group a copy of *SC: An Atlas*.
2. Give each group a towel to place over their table.
3. Give each group one thermometer and three beakers.
4. Place a small cooler of ice and a thermos of warm water on each table.
5. Once all the materials are distributed explain to the students that they are going to use *SC: An Atlas* map p. 7 of the climate regions and the water to create the different average temperatures that they read from the maps.
6. Ask the students what the word climate means? Students will give several definitions; then ask for some synonyms for the word climate.
7. Ask the students how they know what the temperature is outside? (example answers: weather channel, weather man, parents, look on thermometer outside) Build on their responses.
8. Now ask the students what factors influence temperature? (latitude, altitude, proximity to large bodies of water)

9. Ask how many students have seen or used a thermometer before? Have students share their experiences. Ask if thermometers are used for any other purposes? (cooking, temperature inside, body temperature etc.)
10. Ask the students if anyone has ever read a thermometer? How can you tell if the temperature is getting warmer? (mercury rises) Therefore the higher the number the _____ the temperature.
11. Have the students look at the map on page 9 and in their groups discuss what regions of South Carolina are warmer and what regions are colder on average. Ask how they know? (Different colors)
12. Now have the students in their groups use the ice, warm water, and beakers to create the temperatures of the different regions. The students will need to be able to read the map key and interpret the data to know what the temperatures are in the different climate regions. Have the students use the average annual temperature first, then if time permits they can continue on and use the maximum and minimum average temperature maps.
13. Allow the students to experiment and practice reading the thermometer while the teacher walks around and observes the students working to make certain the students are reading the thermometer accurately and interpreting the map correctly.
14. Once the students have experimented and are at a stopping point ask them to put down the materials and have them discuss what they learned about climate, the map, the map key, the thermometers etc.
15. Collect all materials except for the maps.
16. Have the students write a journal response to the following questions using their maps as a reference tool: From what we learned about the regions of South Carolina why do you think the temperatures are different in the different regions? In what climate region would you most like to live? Why?

Evaluation:

- Observe students in their groups for participation
- Listen for students using geographic and mathematical language
- Read the students journal entries for coherent and reasonable answers

Lesson Extensions:

- Have the students look at their maps to locate the three regions of SC and write a paragraph on why they think the climate regions vary in the upcountry, midlands, and low country.
- Have the students compare the temperature in South Carolina to the temperature of other states using a weather map from www.weather.com
- Have the students make a graph of the maximum annual temperatures of South Carolina by using their map. Technology could be integrated by having the students make the graph using excel.
- Review addition and subtraction facts by asking how much warmer is South Carolina's Coastal Zone than the Blue Ridge Mountains? How much colder is Pennsylvania than South Carolina?
- Use the other climate maps and maps from weather.com to introduce the students to Celsius and conversions between Celsius and Fahrenheit.

Resources

South Carolina: An Atlas

Produced and distributed by the South Carolina Geographic Alliance
1-888-895-2023
www.cas.sc.edu/cege

www.weather.com