

Temperature in a Cultural Context

by Doug Ruhman

Grade level 4

Time required

Two 45 minute class periods

Materials/Technology

Poster board
(18" x 24" minimum)
Meter sticks
Markers
Research materials (e.g., newspapers, Internet, books, etc.)
Map of tribal nations of the United States

Summary

In this integrated math/science/social studies lesson, students employ research and the creation of a teaching poster to explore the effects of temperature on Native American lifestyle and culture.

Objectives

The student will:

- 1) conduct research on the connection between climate, lifestyle and culture among Native American people.
- 2) synthesize their knowledge into a teaching poster.

Montana Math standard addressed

Students demonstrate understanding of measurable attributes and an ability to use measurement processes.

Assessment

- 1) Evaluate students based on their finished projects, especially for accuracy of data, clarity of presentation, and inclusion of all required elements of the assignment (research, notes, and poster).
- 2) Observe students during each phase of their work in completing the assignment.
- 3) Assess the student's presentation of their project to the class.

Procedure

Day 1 – Background/Research

- 1) This lesson assumes that students have had some experience in basic interpretation of Celsius and Fahrenheit temperature scales. To reinforce the idea of temperature and climate in a social context, have students begin by sharing orally how extreme variations in temperature would affect the local society. Ask students about how agriculture, for example, would suffer if temperatures suddenly warmed or cooled even a few degrees. Inform students that **climate** is a term that refers to the average weather patterns of an area and is comprised of precipitation, air currents, and average temperatures. Tell students that people have adapted to climatic conditions in various ways throughout history (and prehistory). On our own continent, there are great differences in climate, especially from east to west and north to south, and these differences can be shown in the many ways native peoples lived their lives. From the Inuit in Alaska to the Seminole in Florida, temperature and climate played a big part in the development of native cultural practices. Tell students that they will be research-

ing about several Native American tribal groups and preparing a teaching poster which will show the geographical locations, average temperatures, and some cultural effects of the climate associated with those groups.

- 2) Choose teams that can work successfully together and give each team a copy of the “Tribal Nations of the US” handout. Their job is to select 5 or 6 representative tribes from different regions around North America and find a physical location (i.e., a city) which represents those groups’ “homeland”. Students should be able to find (in an almanac or newspaper weather section) average high and low temperatures for that region using the data for the selected city. Students can then use library books, Internet searches, and periodicals to scan for examples of cultural practices which show a connection to the climate, and specifically the temperature, of that region. Some examples are listed here:

- Eskimo/Inuit reliance on cold-weather species like whales, walrus, and caribou for clothing, food, and tools
- The traditional and modern dress of the Navajo and Apache people, the cultivation of corn (which requires long growing seasons and certain temperatures to grow well) in Southwest societies and their oral histories
- Games that evolved in Native societies which are dependent on the climate, such as the Iroquois game “Snowsnakes”, which cannot be played in warmer climates

Students should record their temperature and cultural findings on notebook paper for later use on the posters.

Day 2 – Posters

- 1) Have students divide their posterboard into six columns with these headings:

Tribal group	Low temperature (avg.)
Location (near)	Cultural practice affected
High temperature (avg.)	Notes

Students should then record their data under the appropriate heading. The “Notes” column is for kids’ observations about how temperature affected peoples’ ways of life.

- 2) Have students share their teaching posters with other groups, or make a whole class display and have spokespersons from each group give an explanation of their findings. Use other groups as evaluators to insure that the posters were done correctly and the objectives of the research and project were met.
- 3) For closure, point out that one can find examples all over the globe of how peoples’ food, clothing, and even games are directly tied into the climate in which they live.

Extensions

1. Research and graph a similar set of data regarding other cultural groups.
2. Create the charts/posters using a spreadsheet, draw program, or multimedia software program such as HyperCard, HyperStudio, or Powerpoint.
3. Find out how locally grown plant crops rely on temperature stability and explore the idea of frost-to-frost growing seasons.

Further information

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