

2007

# Patterns of Temperature

STORM Project

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## Recommended Citation

STORM Project, "Patterns of Temperature" (2007). *Open Educational Resources*. 22.  
<http://scholarworks.uni.edu/oermaterials/22>

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**Activity 3**  
**PATTERNS OF TEMPERATURE**  
**Level 1**

**Concept:** Temperature patterns show how cold, cool, warm and hot air are distributed around the country.

**Objectives:**

1. Students will analyze temperature distributions on a map.
2. Students will compare and contrast temperature variations on a weather map.

**National Science Standards:** All students should develop an understanding of: structure of earth system, science and technology, risks and benefits, and science and technology in society.

**Engage:**

Ask students whether or not they have ever seen TV weatherpersons show temperature maps for the United States. What can they remember about these maps? What part of the country usually has warm temperatures?

**Explore:**

Materials:

- Colored Pencils
- Lead Pencil
- Introduction to Patterns Activity Sheet

**Procedure:**

Direct students to do the following:

1. On the Introduction to Patterns Activity Sheet you will find a variety of numbers. Can you find a pattern among the numbers? Place a colored dot on each number using the color key below. Teachers: you may change the colors but should keep a key so that maps look the same at the end.

1 = Dark Blue	4 = Yellow	7 = Black
2 = Red	5 = Purple	8 = Light Blue
3 = Green	6 = Orange	9 = Brown
2. Do you see a pattern developing? To see the pattern better, use a pencil to draw a line between the 1's and 2's. Then draw a line between the following: 2's and 3's, 3's and 4's, 4's and 5's, 5's and 6's, 6's and 7's, 7's and 8's, and 8's and 9's.
3. Fill in each area with it's matching color. Continue this process until you have colored the highest number range.
4. What image do you think you see? The stylistic image might look like a foot kicking a soccer ball.

**Explain:**

**Materials:**

Colored Pencils, and Pencil  
Current Temperature Map (copy from the link provided on the STORM website)

**Procedure:**

1. If you analyze the temperatures on the map, they will reveal some patterns. Find the lowest temperature on this map.  
Color that number blue.
2. All of the numbers in that 10-degree temperature range should be colored blue. (Example 20 through 29 or 40 through 49, etc.)
3. Choose a new color and fill in the next higher set of values. If your lowest number is in the 20's you would color numbers 30 to 39, etc.
4. Continue this process until all the numbers are colored. The last numbers will represent the highest temperatures on the maps.
5. With a lead pencil draw a line separating the color bands (10's and 20's, 20's and 30's etc.)
6. Fill each area of numbers with matching colors.
7. Create a color key showing the color of each temperature area in the bottom left corner of your map.

You may choose to have students answer the following questions as a class or have individual students or groups of students answer them first and review the answers as a class.

1. What patterns have you discovered as you colored in the map?
2. Why do you think these patterns exist?
3. How can people use these maps in their everyday lives?
4. How could these maps help you plan activities in the future?
5. Why would it be important for a meteorologist to study patterns found in weather data?

**Extend:**

Access Map 3 from the temperature maps page and compare your map to the current on-line temperature map as you answer the following questions.

- a. How are they alike or different? Explain how those differences could occur.
- b. Describe how the temperature changes from north to south and west to east throughout the United States.
- c. Name the states which are found in the   \* degree F temperature band.  
(\* Suggestion: 50 degrees F)

**Evaluate:**

Collect student sheets and monitor discussions.

**For Further Inquiry:**

Have your students do a web search to locate temperatures from other countries. Ask them, “What extreme temperatures (hot or cold) can you find? Where are those temperatures located? Do you see similar types of patterns of temperatures occurring here as you saw in the US?” Have your students design an activity to answer these questions or any other questions they might have about temperature patterns.

# Introduction to Patterns Activity Sheet

3 3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 6 7 7 7 7  
3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 6 6 7 7 7  
3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 6 6 7 7 7 7  
3 4 5 5 5 4 4 4 4 5 5 5 5 5 6 6 7 7 7 8 8  
4 5 5 5 4 3 3 3 3 4 5 5 5 5 6 6 7 7 8 9 9  
5 5 5 4 3 3 2 2 3 3 4 5 5 6 6 7 7 8 9 9 9  
5 5 4 3 3 2 1 2 3 3 4 5 5 6 6 7 7 8 9 9 9  
5 5 4 3 3 2 1 2 3 3 4 5 5 6 7 7 8 9 9 9 9  
5 5 5 4 3 3 2 2 3 4 5 5 5 6 7 7 7 8 9 9 9  
5 5 5 5 4 3 3 2 3 4 5 5 5 6 7 7 7 7 8 9 9  
5 5 5 5 5 4 3 3 3 4 5 5 5 6 7 7 7 7 7 8 9  
5 5 5 5 5 5 4 4 4 5 5 5 6 7 7 7 7 7 7 7 8  
5 5 5 5 5 5 5 5 5 5 5 6 7 7 7 7 7 7 7 7 7  
5 5 5 5 5 5 5 5 5 5 5 6 7 7 7 7 7 7 7 7 6  
5 5 5 5 5 5 5 5 5 5 5 6 7 7 7 7 7 7 7 6 5  
5 5 5 5 5 5 5 5 5 5 5 6 7 7 6 6 6 7 7 6 5 5  
5 5 5 5 5 5 5 5 5 5 5 6 6 5 5 5 6 6 5 4 5  
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 4 3 4  
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 4 3 2 3  
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 4 3 2 1 2  
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 4 3 2 1 1 1