

# 2003 National Teacher Training Institute

Grade 4

“Bar Me In”

## Master Teacher

Mary Leah Henry

## Time Allotment

One hour

## Overview

Bar graphs are usually used when comparing two or more things. In this lesson, students will be given the definition for bar graph; and they will gather information from their classmates and construct a human bar graph. Through the activities presented in this lesson, students will learn the skills necessary to construct bar graphs. Students will also examine Web sites and video clips, and participate in hands-on activities in which they can further explore real life use of bar graphs. This lesson will ideally be used as an introductory lesson to a graph unit.

## Differentiation of Instruction

This lesson is written primarily for students in the regular streamed education at the fourth grade level. However, some adaptation has been added to teach the student who is hearing impaired. The lesson used in the video is closed captioned; and it includes an American Sign Language interpreter. The activities included are hands-on with a tactile/kinesthetic emphasis.

Activities for this lesson are based on guidelines from SC Curriculum Standards Implementation Guide, Chapter Four, pages 7-8, 19. Differentiation of Instruction (<http://www.myschools.com/offices/cso/SIG/k5.htm>) modifications for special needs students are included in the lesson




plan. The modifications support the achievement of the selected standards.

## Subject Matter

Math

## Learning Objectives

Students will be able to:

-  Define bar graph;
-  Construct bar graphs;
-  Interpret bar graphs.

## South Carolina Standards

(These Standards are available online at <http://www.myschools.com/Offices/CSO/>.)

## Data Analysis & Probability

1.C.2. (C.)

Read and interpret information from tables, line graphs, and {bar graphs}.

## Media Components

### Video

*MathTalk*, Lesson 2: “Data Game—Using Graphs.” In this video, a bird shares the definitions of graphs with his friend.

### Web Site

*SCO January 20-26 2003 South Carolina Weather And Climate* (<http://www.dnr.stste.sc.us/climate/SCO/weekly>) Scroll down to “Precipitation and Temperature Data.” Locate the South Carolina cities, and find the average for the maximum temperature, and minimum temperature for the month of January 2003. This Web site provides a summary of the weather for some cities in South Carolina.

## Materials

several colors of sidewalk chalk  
student journals

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pencils  
2 different colored crayons for each student  
ruler for each student

## Equipment

overhead projector and transparency  
VCR and TV

## Adapting NTTI Strategies for Deaf/Hard of Hearing and/or Visually-Impaired Students

### Adapting Video

- ✎ Closed captioned and total communication for deaf students
  - Interpret (sign) closed-captioned video to provide total communication for deaf students.
    - Use visual communication to enhance understanding of the video scenes for students not reading at the vocabulary level of the captions.
    - Signing over narration helps students focus when an emphasis on certain information is needed.
- ✎ PAUSE strategy and closed captioned
  - When using closed captioned, pausing the video can cause the loss of 1-3 sentences of closed captioned as the pause is released and the video begins to play at the pause point. Suggestions for modifying the PAUSE strategy:
    - The teacher may need to rewind after the pause and then begin to play the video.
    - Play closed captioned in longer segments and provide a video guide sheet with the **Focus for Media Interaction**.
    - Play the video segments through from the beginning point to the

ending point. The **Focus for Media Interaction** would be given at the beginning. Tell the students that they will watch the entire segment, and then watch it again, pausing for them to answer the focus task for each segment. Tell them some of the caption is lost at pause points, read carefully the first time.

- ✎ Non-captioned video
  - Prepare to interpret (sign) the video for deaf students.
  - Arrange for a qualified interpreter to sign the video. Plan the lesson in advance to allow time for this arrangement.
- ✎ Screen size for visually-impaired students
  - Use a projection device with the VCR to project the video to a large screen.
  - Allow students to sit close to TV or large screen.
  - Determine how the students can touch the TV screen, if not by hand, then with a pointer (yardstick). Provide an opportunity for the visually-impaired student to touch or trace images if touch would enhance the learning.

### Adapting Web Sites

- ✎ Web sites with audio
  - Provide an interpreter for each hearing-impaired student.
  - Use with small groups with teacher interpreting and guiding the activity.
  - Direct students to alternate text files for the video/audio if available.
- ✎ Screen size for visually-impaired students
  - Use a projection device with the computer to project to a large screen.

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- Allow students to sit close to computer screen or projector screen.
- Determine how the students can touch the screen, if not by hand, then with a pointer (yardstick). Provide an opportunity for the visually-impaired student to touch or trace images if touch would enhance the learning.

✎ Web sites with total communication for the blind

- Use sites encoded with Braille.
- Use sites with audio.
- Use sites that are easily read by text reader software. (Page is formatted from left to right allowing tab or arrow keys to move the reader through the text and images. Images have alternate text that identifies the image in relation to the text on the page.)

## Prep for Teachers

- ✎ Preview and cue video.
- ✎ Preview and bookmark all Web sites.
- ✎ Gather student materials for activities.
- ✎ Prepare a sample graph for the M&M graph activity.
- ✎ Locate a sidewalk or surface on which students can draw and stand.
- ✎ When using media, provide students with a **Focus for Media Interaction**, a specific task to complete and/or information to identify during or after viewing of video segments, Web sites, or other multimedia elements.

## Introductory Activity

**Step 1:** A Human Bar Graph will be used as the **Introductory Activity**. Students should form a line from shortest to tallest. Students that are the same height should form lines (bars) extending off the original line. Measure the height of one student in each “bar.” Give the students in the front of each “bar” a piece of colored sidewalk chalk. A student at the front (top) of the “bar” should write the height on the sidewalk in front of his feet.

**Step 2:** The class can count the number of students in each “bar” to identify how many students are the same heights. Students in each bar are to use the chalk to draw a rectangle to enclose their “bar.” Students should carefully step out of the rectangles and return to the original line. Direct a student from each “bar” to write the number of students that formed the “bar” at the base of the “bar.”

**Step 3:** Discuss bar graphs with the students. Ask: “How does the rectangle [bar] represent the number at the base of the bar, at the top of the bar? Look at the ‘bars’ and tell each other all of the information that the numbers, colors, and size of the rectangles [bars] represent.”

## Learning Activities

**Step 1:** After returning to the classroom, tell the students that they are going to watch a video, *Math Talk*, Lesson 2: “The Data Game—Using Graphs,” about a bird receiving information from his friend about graphs.

**Step 2:** Insert the video into the VCR. PLAY the video. The segment begins with a green and yellow parrot with an earphone on his perch. The parrot says, “Maria is not here; now is my chance.” Provide your students with a **Focus for Media**

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**Interaction** by asking your students to raise their hands when the definition of graphs is given. PAUSE the video just when the bird comes up close to the screen, rubbing his head and saying, "...I am getting a superstar headache." Write the word *graphs* on the transparency. Ask the students to define graphs based on the information from the video.

**Step 3:** Tell the students the next clip is a game show. The students on the game show are asked a question about the bar graph. There is an interpreter on the game show. FAST FORWARD until you see these words on the screen, Square One, Math Challenge in Progress. Music is playing. Provide your students with a **Focus for Media Interaction** by telling them to listen and watch carefully. PAUSE the tape before the students answer and ask them to PREDICT the correct answer. PLAY the clip. PAUSE the tape when the host repeats the question, "Which day had the lowest high temperature?" and the two students are sitting behind a game show desk with the scores of 50 in front of each. Ask students to vote for Beverly or Chris as having the correct answer. REWIND and REPLAY the clip if necessary. Tally the votes for each answer.

PLAY the video from the pause point. PAUSE the video when the host is saying, "Beverly, will you explain?" and the picture of the bar graph is on the screen. Beverly's answer was correct. HOLD the PAUSE as one or more students to come up to the television screen and to explain why Beverly was right. Ask the students to explain the labels on the graphs. What does each label represent? PLAY the video to hear Beverly's explanation. PAUSE the video when the sign Square One Challenge is on the screen and music is in the background.

**Step 4:** Tell the students the next clip shows how bar graphs can be helpful to display data collected by weathermen. PLAY the tape from the pause point. Provide your students with a **Focus for Media Interaction** by asking: What are two ways that bar graphs were used to display weather information? How was the data collected used to make the bar graph? STOP the tape when the parrot says, "Thanks for telling me about graphs." The parrot is sitting on his perch looking at his co-host. Repeat the focus questions for students to answer.

**Step 5:** After viewing the video, students will take out their Math Journals and write (using the paragraph format) the following: Define graphs and tell how weathermen can use bar graphs to represent information. Draw a bar graph to illustrate the heights of students in the class.

Work with each student in labeling the graph correctly.

### Culminating Activity

**Step 1:** REWIND the video to the picture of the graph in the game show segment. PAUSE the tape on the graph of the temperature by days of the week. Ask the students to review questions about the graph, information represented, labels that help explain the information.

**Step 2:** Students will access the bookmarked Web site *SCO January 20-26 2003 South Carolina Weather and Climate* (<http://www.dnr.stste.sc.us/climate/SCO/weekly>). Tell them to scroll down to "Precipitation and Temperature Data." Locate the South Carolina cities, and find the data for the maximum temperature, and minimum temperature for the month of January 2003. Provide students with a **Focus for Media Interaction** by asking them to choose three cities with very different

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temperatures. Draw a bar graph and label it to show the high temperature and the low temperature for each city. Use the ruler to draw your bars and lines for temperatures and use the crayons to represent high and low temperatures.


### **Cross-Curricular Extensions**

**Science:** Students will listen to the local weather forecast for any 5 days.

They will record the lowest temperature for each day

Students will use a bar graph to show this information.

### **Community Connections**

 Invite the weather forecaster from your local television/radio station. Have him show the kids how he uses bar graphs in the weather forecast.