Analyzing Graphs

STRAND: Probability and Statistics

STRAND CONCEPT: Data Representation and Interpretation

SOL 6.10b,c; 8.13b

Remediation Plan Summary

Students will develop skills in interpreting graphical representations of data. They will discuss statistics that can be developed from graphs, compare and contrast data, find unique and common features, describe trends and relationships between variables, and make predictions from the data. Scatterplots are not introduced until 8th grade. Teachers can substitute the scatterplot in this lesson with another type of graphs if this lesson is used with younger students.

Common Misconceptions

Students have a difficult time understanding which type of graph best represents a set of data. They need to compare and contrast data sets with different representations.

Materials

- Three different graphs for groups
- Reflection sheet
- Chart paper for whole class graph

Introductory Activity

Begin with a general discussion about graphs. Ask the students why we graph data? How does a graph help us understand data? Why do we have different types of graphs? Why are some graphs better for data than others? How can you choose one type over another? Create a whole group graph using student data such as shoe size or height. Decide as a whole group what type of graph would best fit the data. Make the graph on large chart paper. Have the class create a summary of the class graph. . The summary should focus on comparing and contrasting categories, describing trends, identifying outliers and clusters. The summaries should not report numbers (such as, in 1990, there were 20 people and, in 1995, there were 300 people) or non-interpretative statements about the graph.

Plan for Instruction

1. Put students in small groups. Give pairs of students in the group a different graph. Students should not allow other members of their group to see their graph. In their pairs, the students should write a summary of the graph using key words appropriate to the type of graph illustrated. Walk around and assist students who are struggling.
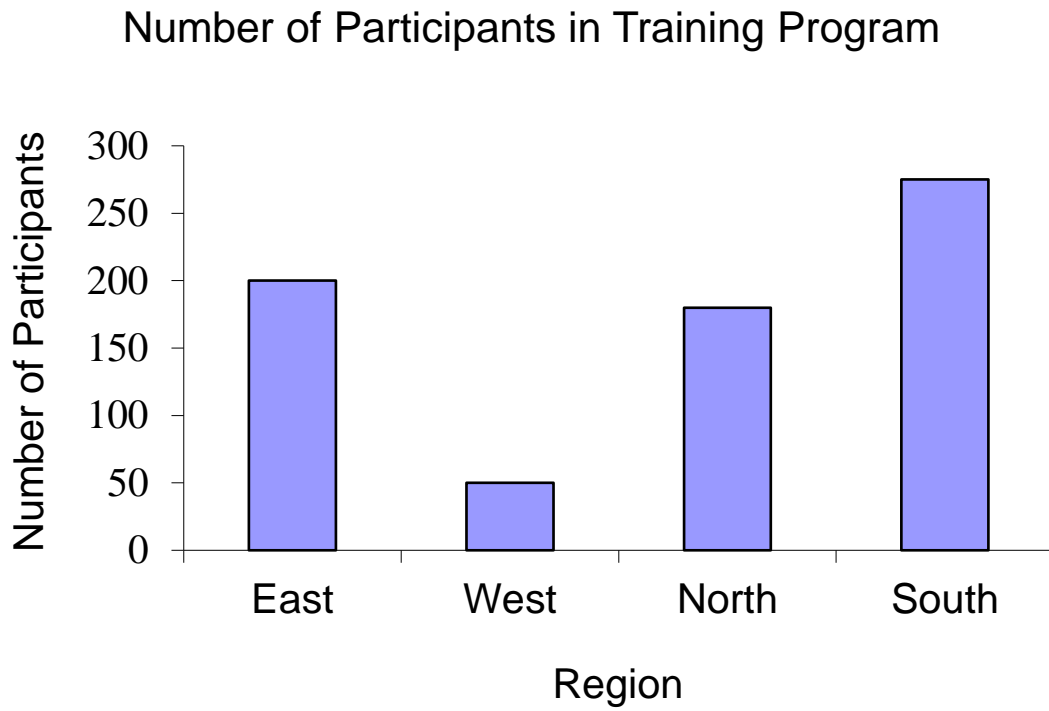
2. After each student has written their summary, the group will play the game "Draw that Graph". In this game, there should be two "drawers" and one "analyzer". The analyzer will be the person whose graph is being drawn. The other two members of the group will be drawers. The analyzer reads his/her summary slowly to the group and the other two members attempt to recreate the graph. The analyzer cannot give specifics about where to draw what lines or points. Rather, he/she must rely on the written analysis. After the drawers are finished, the group can compare the graphs to the original graph and discuss what parts of the summary allowed them to graph the data and what could have been included in the summary to better explain the graph.

Pulling It All Together (Reflection)

Students will individually read the summary of a graph and create the graph from the data and summary

Note: The following pages are intended for classroom use for students as a visual aid to learning.
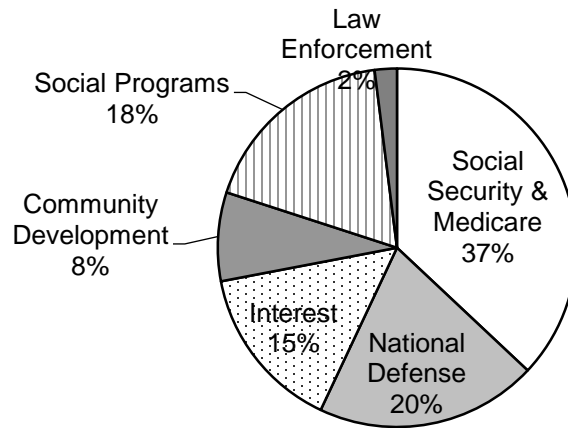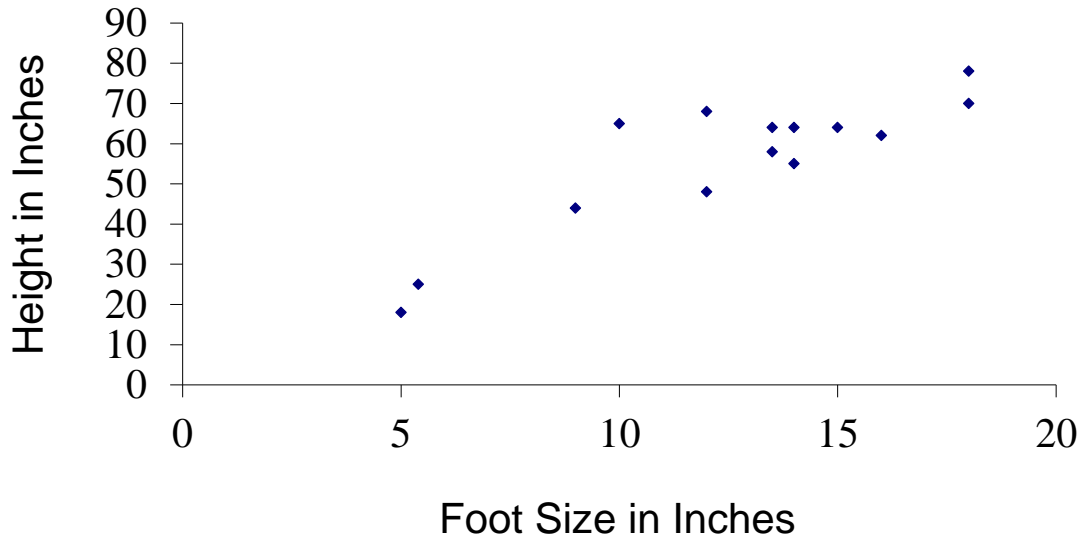
Graph 1:

Number of Participants in Training Program

Summary:

Graph 2:

Federal Outlays

Summary:

Graph 3:

Foot Size versus Height

Summary:

Reflection- Create the graph using the summary and the data chart below. Remember to include all information in the final graph.

Types of Ice Cream Sold in July

Summary

This graph is in the shape of a circle. All the data is represented in percentages. The graph is color coded. The colors are:
- Chocolate is blue
- Vanilla is green
- Mint chocolate chip is yellow
- Fudge Ripple is orange
- Cookie Dough is purple
- Strawberry is red

The circle represents 100% of the ice cream sold in July in quarts. The total number of quarts sold in July is 587 quarts.

Types of Ice Cream sold in July

Types of Ice Cream	Amount sold in quarts	Percentage
Chocolate	132	22%
Vanilla	106	18%
Mint chocolate chip	84	14%
Fudge ripple	56	10%
Cookie Dough	116	20%
Strawberry	93	16%
Total Sold	587	100%