

DATA ANALYSIS

The Student will be able to:

1. Demonstrate an understanding of data presented in graphs and tables and apply measures of central tendency.

- Understand and become familiar with the different types of graphical representation
- State the main idea of the entire graph
- Interpret a table, a line graph, a bar graph, a circle graph, and a pictograph
- Translate written information into graphical formats
- Compare and contrast different sets of data, comparing the same information on a bar graph and a line graph
- Make predictions and draw inferences based on a study of the data
- Understand the meaning of mean, median, and mode, and perform the mathematical functions to find all three

2. Apply appropriate strategies to solve word problems involving graphs, tables, and measures of central tendency.

- Read the problem very carefully and read all headings and sub-titles on the graph or table
- Distinguish rates of change represented on a single graphic
- Locate and apply the symbols if there is a graph key
- Reread the word problem to be sure the answer selected makes sense relative to the question and the graph

Recommendations for teaching data analysis:

- Teach a beginning lesson using a few simple graphs
- Stress the importance of reading and understanding all headings and sub-titles
- Have students calculate the size of the interval on both the horizontal and vertical axes
- Use a variety of graphs
- Construct a simple graph using data collected in class over a defined time period (Example: distance each student drives to school or number of siblings)
- Work in groups to develop questions from two or more graphs
- Have students bring in graphs found in the newspaper and magazines
- Present more complex graphics as the students become successful
- Teach the steps in solving complex word problems related to a graphic display
 - Read the problem critically
 - Identify pertinent data
 - Use the correct mathematical process
 - Reread the problem and look over the graph to make sure the answer makes sense

- Use a great variety of problems
- Have your students use a ruler or straight edge to read across several rows and columns
- Have students do a few “mean” word problems “backwards”. Multiply the average by the number of values in the set to find the original sum

Data Analysis Essential Vocabulary

Bar Graph: each bar represents a quantity. The longer the bar, the greater the quantity.

Central Tendency: finding the center of a group of numerical data either the mean, the median or the mode

Circle graph: also called a pie chart. It is a divided circle with each segment given a name and a value. The whole circle represents 100% of the data displayed.

Line graph: a thin line represents data. Every point on the line has a value. Data is shown in a continuous way.

Mean (average): mathematical word for average. Compute the sum of the set. Divide this sum by the number of items in the set.

Median: the middle value in a set of numbers. For odd number of items, the median is the middle number. For an even number of items, the median is the average of the two middle numbers.

Mode: value that appears most often in a set of numbers. If all the values occur the same number of times, there is no mode.

Pictograph: graph that uses small pictures as symbols. Each symbol has a value that is shown on the key. A long line of symbols has a larger value than a short line.

Table: Numerical data appearing in rows and columns

Student Inventory

Data Analysis

Name _____ Date _____

1. **I know the difference between a chart and a graph.**
Yes _____ I need more work _____
2. **I know the difference between a picto-, line, bar and circle graph.**
Yes _____ I need more work _____
3. **I know that all the pieces of a circle graph will equal 100%.**
If you spend 40% of your pay on rent, 15% for car costs, 5% on food, and 25% on bills, what percent is left for other expenses? _____
Yes _____ I need more work _____
4. **I can look at a chart or graph and state the main idea.**
Yes _____ I need more work _____
5. **I can make predictions based on studying a chart or graph.**
Yes _____ I need more work _____
6. **I can compare and contrast data represented on different types of graphs.**
Yes _____ I need more work _____
7. **I can calculate the mean of a set of numbers.**
Find the mean for 21, 16, 35, 40, 56, 16. _____
Yes _____ I need more work _____
8. **I can find the median of a set of numbers.**
Find the median of 21, 16, 35, 40, 56, 16. _____
Yes _____ I need more work _____
9. **I can find the mode for a set of numbers.**
Find the mode of 21, 16, 35, 40, 56, 16. _____
Yes _____ I need more work _____
10. **I can solve word problems using graphs, charts, and other data analysis techniques.**
Yes _____ I need more work _____