

Graphing Can You Have it All?

Duration: 90 minutes

Group Size: variable

Setting: Classroom

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This activity student will provide students the opportunity to collect data and critically think about what is the best type of display for this type of data.

Goals:

- Collect data
- Organize data
- Display data with appropriate notation in tables
- Select the appropriate type of chart or graph to display the data
- Construct the appropriate charts or graphs for the data

Materials:

- Activity Handout: “Can You Have It All?”
- Graph paper

Background:

Students need to understand what each type of chart or graph is and what type of data is best displayed by that type of graph.

Chart or Graph type

- Frequency tables
The frequency of a particular observation is the number of times the observation occurs in the data. Frequency distribution tables can be used for both categorical and numeric variables. Best used when you want to know how many time one chose was selected.
- Scatter plots
Scatter plots are similar to line graphs in that they use horizontal and vertical axes to plot data points. Scatter plots show how much one variable is affected by another. The relationship between two variables is called their correlation. Scatter plots are best used when you want to know how one variable affected the other variable.
- Broken line graphs
A broken line graph would be discontinuous-- the entire line would not be connected, there would be a space between two or more of the points. Best used when there is not continuous data.
- Line plots

A graph of ordered pairs, (x,y), where the points are connected, in order, by a line segment. Best used when the data shows a change over time.

- Bar graphs
A bar graph is a visual display used to compare the amounts or frequency of occurrence of different characteristics of data. Best used to:
 - compare groups of data, and
 - to make generalizations about the data quickly
- Histograms
A histogram is the graphical version of a table, which shows what proportion of cases fall into each of several or many specified categories. The histogram differs from a bar chart in that it is the *area* of the bar that denotes the value, not the height, a crucial distinction when the categories are not of uniform width.
- Circle Graphs
A graph representing parts of a whole as sectors (pie pieces) of a circle. Best use is for showing percentages.
- Stem-and-leaf plots
A stem and leaf plot, or stem plot, is a technique used to classify either discrete or continuous variables. A stem and leaf plot is used to organize data as they are collected.

Materials and Preparation

List of materials is included in the list above. This activity could be completed at the end of a graphing unit as a review, a reinforcement, or an assessment. Students should already know the different kinds of charts and graphs and the type of data each is most useful for.

Procedure

1. Hand out the worksheet, “Can You Have It All” and go over the rangeland resources and uses and give an example of each
2. Ask students to rank their personal preference for each rangeland use. A rank of 10 – highest or most preferred use and rank of 1 – lowest or least preferred use.
3. Discuss what type of a chart or graph would be best for this data. (A bar graph would be appropriate.)
4. Have the students make a bar graph of their data. Make sure it is titled and labeled properly.
5. Discuss what type of a chart or graph would be best for this data if the entire class data would be analyzed. (A frequency table would be appropriate.)
6. As a class record a table of the entire class data on the board.
7. Have each student make 2 frequency tables using the class data for one land use for each graph.
8. Discuss with the students what type of data one could obtain that would be shown well by the other types of charts or graphs.