Getting A Grip On Graphs

Summary

Students will gather a variety of data and create a graphs to display the data.

Materials

- *Tiger Math*
  by Ann Whitehead Nagda
  Post-it® notes
  Poster board
  Clipboard
  Tally sheet
  Pencil
- Handout (pdf)
    Graphing Ideas
    Ideas For Gathering Data
    Tips on Building Great Graphs
    Make a Graph From the Internet
- *Graph Illustrations*
  Grid paper
  Colored markers
  Large clay flower pot
  Lengths of yarn for each student in the class
  Paper
  Circle patterns
  Rulers
  Overhead projector and transparencies of bar graph, circle graph, and other samples
  Math journal

Additional Resources

Books

- *Tiger Math*
  , by Ann Whitehead Nagda; ISBN 0805062483
  Math At Hand, by Great Source Education Group Staff; ISBN 0-669-46922-X
- *Creative Graphing Book*
- *Hands-On Statistics, Probability, and Graphing*
  , Grades 3-8, by Scott Purdy; ISBN 0927723114
- *Lemonade For Sale*
  , by Stuart J. Murphy; ISBN 0-06-446715-5
  "Graphs Bulletin Board Set" (Nasco catalog) TBI8290(X)TB

Background for Teachers

Displaying data clearly can help you prove a point. It can also help you to discover patterns/trends in your data. Clear displays can help you see trends, make predictions, and compare ideas. *Graphs* help you to see the “big picture” hidden in your data.

A big part of showing data clearly is choosing *which kind of graph to use*. You might use a Venn Diagram to show how the students’ family pet data are related to each other. You might choose a line graph to show how a baby tiger gains weight as it grows. To compare the number of games your favorite team has won, you might select a bar graph. Only introduce one graph per day.

The most effective way to introduce young children to the concept of gathering data and transferring that data onto a graph is to start with a pictograph, and then gradually explore the many and varied kinds of graphs as new and different data are gathered. Keeping a math journal as you go is also very important to help children see their progress and review concepts.

Intended Learning Outcomes

4. Communicate mathematically.
5. Make mathematical connections.
6. Represent mathematical situations.

Instructional Procedures

Invitation to Learn

Read *Tiger Math*. Teachers should only read aloud one page per day.

Guiding questions: What are the different kinds of graphs that were used to show the tiger's growth? How do graphs show "the big picture?"

Instructional Procedures

Draw a graph on poster board. On the x-axis, list several fast food restaurants in your area. On the y-axis, list numbers 1-15. Name your graph *Favorite Fast Food Restaurants*.

Give each student a Post-it® note. Have him/her write his/her name and favorite fast food restaurant on it. Each student will stick his/her Post-it® on the correct location on the graph to show a "representation" graph. This is a quick and simple method to introduce graphing.

Use the *Tips On Building Great Graphs* chart to discuss.

One person takes a survey: "What is your favorite kind of potato dish?" Convert tally sheet into a frequency table.

Have the students make a *real* bar graph in the classroom. Ask them to arrange themselves in a bar graph form to illustrate data (e.g., "What is your favorite flavor of ice cream?....chocolate, vanilla, or strawberry?").

Create a bar graph from the data using a different colored bar for each item. Use overhead projector to illustrate; each person makes his/her own bar graph.

Using flower pot and twine, show how you can use people to make a circle graph. Lay the flower pot upside down. The pieces of yarn should be equivalent to the number of students. Tie one end of pieces of yarn together and insert through the hole. Students will transform the bar graph into a circle graph.

Using this data, create a circle graph, using same colors as on the bar graph. Use overhead projector to illustrate; each person makes his/her own circle graph.

Place graphs in a math journal.

Extensions

- *Make a Graph From the Internet*

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Make entries in your daily math journal.

Examples of graphing data from 4th grade curriculum:

"What is your favorite kind of rock?"

"What is your favorite kind of weather?"

"What is your favorite place to visit in Utah?"

"What country in Asia would you like to visit?"

Family Connections

Assign students to take a survey at home and make one or more graphs showing the data resulting from the survey.

Using the previously mentioned graph(s), write three questions to show correct interpretation of the data.

Assessment Plan

Give each student a clipboard and tally sheet; ask him/her to make up his/her own question and transfer the resulting data into various kinds of graphs.
Reading graphs: Ask questions, verbally or written, to test students' ability to interpret data on various kinds of graphs. (Example: During which month of the year did Utah have the greatest and least amounts of precipitation?")
On a different day, ask students to use the same data as gathered previously to create a different kind of graph. Plan to graph at least twice a month, and add these graphs to their math journals. This will provide the teacher with student work showing progress, indicating graphing content needing clarification.

Authors

Utah LessonPlans