



Measurement and Data

Prescriptive Lesson

Picture and Bar Graphs, and Line Plots

Grades 3-5

Standard:

3.MD.B.3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

4.MD.B.4: Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection

5.MD.B.2: Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

Goal: To interpret data shown in bar and picture graphs, and line plots by creating and answering questions which can be answered using the graphs

Procedures:

1. Provide groups of students with various samples of bar and picture graphs, and/or line plots. You may want to create graphs using information about the students or their interests. *All groups should have the same graphs.*
2. Have students look at the graphs and discuss the information that is shown in the graphs with their groups.
3. Assign each group to create at least 3 questions about each of the graphs. They should try to come up with questions that will challenge their classmates.
4. Each group should then pick a speaker to ask the questions of the class. The speaker will ask questions of the class, omitting any questions that were already asked.
5. If there are disagreements about the answers, have students use the data in the graphs to defend their answers.
6. Discuss any challenges or difficulties that students had with the concept. Ask, “Which kinds of questions were the most difficult to answer? Which were the easiest?”

Picture and Bar Graphs Grade 3

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Variations:

- Have students find an example of a bar graph or picture graph, and/or line plots in the newspaper or a magazine at home, and come up with 2 or more questions about the graph.
- Have students develop a question to ask family members and then conduct a survey. After they collect their data have them draw a scaled picture or bar graph to represent their data. Have students share the graphs with the class along with several questions that can be answered using the graph.