

Grab a Handful

Major Understanding

Comparisons, predictions, and inferences can be made by examining characteristics of a data set displayed in a variety of graphical representations in order to draw conclusions.

Objectives

- Use the measures of central tendency (mean, median, mode, range, interquartile range, quartile) to make informed conclusions
- To collect, analyze and interpret data
- Take a sample and represent it in the form of a list or chart
- To take a sample and represent it in the form of a stem and leaf plot and box and whisker plot

SOL 8.12

The student will use information displayed in line, bar, circle, and picture graphs and histograms to make comparisons, predictions, and inferences.

Materials and Equipment

Bags of popcorn

Napkins

Calculators

Overhead projector

Transparency for each student handout

Copies of student handouts

Tape measures

Index cards

Yarn

Tagboard labels: median, upper quartile, lower quartile

Procedures

Part I

1. Introduce the concept of a handful by discussing "How much is a handful?" How would a handful be defined?
2. Pose the question: Will students with larger hands grab more popcorn than students with smaller hands?
3. Students will vote their opinion.
4. Ask students how could we investigate this question.

5. Distribute measuring tape to each pair of students. Have each student measure their hand span to the nearest centimeter. Demonstrate the open hand. Measurement should be completed from the thumb across the palm to the end of the little finger.
6. Record data on index card. [include student name] As each student finishes, record on overhead.
7. Make a human box and whisker plot. Inform students that this data will now be used to organize them into a human box and whisker plot.
 - Have students line up in order from those with the smallest hand span to those with the largest hand span.
 - Have students count off, starting at both ends of the line until they reach the student in the middle.
 - Give this student the label "median".
 - Have students count off, starting from the median to the end until they reach the student in the middle.
 - Give this student the label "lower quartile".
 - Use the same procedure for the other half of the data.
 - To complete the box and whisker plot, use the yarn to wrap around students between the lower quartile and the upper quartile.

Part II - Grab a Handful

Data Collection

1. Explain to students that each will be given an opportunity to grab a handful of popcorn.
2. After each has grabbed a handful, students should count the popcorn grabbed. [They must decide whether to count broken pieces of popcorn.]
3. Students should record data on the opposite side of the index card.
4. Record data on overhead.
 - Find the mean.
 - Find the mode.
 - Find the median.
 - Find the range.

Part III-Constructing Stem and Leaf Plot

1. Review with students how to make a stem-and-leaf plot.
2. Make the stem-and-leaf plot.
3. Using the stem-and-leaf plot find the median, the lower quartile, and upper quartile.

Part IV- Constructing the Box and Whisker Plot

Use the information from the stem-and-leaf plot to construct the box and whisker plot.

Closure:

1. Return to the original question, and discuss the answer in terms of the measure of central tendency.
2. Which measure of central tendency best describes the amount in a handful?
3. What are the advantages and disadvantages of using the mean, mode and median?

ASSESSMENT

Students use data from PART I - Measure of Hand Span to complete the following.

1. Make a stem and leaf plot.
2. Make a box and whisker plot.
3. Find the measures of central tendency-mean, median, mode and range.

Grab a Handful

Recording Sheet

Name _____ Block _____ Date _____

	My Estimate	Actual Size
Hand Span [measured to the nearest centimeter]		
Popcorn Grabbed		
Number of students in class today		

CLASS DATA [GRAB A HANDFUL OF POPCORN]

MEAN	MEDIAN	MODE	RANGE

STEM AND LEAF PLOT

BOX AND WHISKER PLOT

NAME



1. Use the hand data measurement to make a stem and leaf plot.

2. Complete the table using the data from the hand measurement section of this activity.

MEAN	MEDIAN	MODE	RANGE

3. Make a box and whisker plot using the same data.