

Histograms

Summary

Students will display data using a histogram

Main Core Tie

Mathematics Grade 6

[Strand: STATISTICS AND PROBABILITY \(6.SP\) Standard 6.SP.4](#)

Additional Core Ties

Secondary Mathematics I

[Strand: STATISTICS AND PROBABILITY - Interpreting Categorical and Quantitative Data \(S.ID\) Standard S.ID.1](#)

Materials

- [Foldables made in April Lesson 1](#)
 - [True/False Response Cards](#)
- Worksheets: [Pocket Change Histogram](#), "[Guessing On A Test](#)" Histogram
TI-73's, Post-It note for each student
Benchmark or other test to be used as a "Guess The Answers" activity

Background for Teachers

Enduring Understanding (Big Ideas):

Data can be represented and analyzed to help us make decisions.

Essential Questions:

- How can we construct a histogram?
- When is a histogram a suitable way to represent data?
- What can you infer from the histogram?
- How can a histogram help me find central tendency?

Skill Focus:

Constructing a histogram, making inferences, finding central tendency

Vocabulary Focus:

Histogram, interval, mean, median

Ways to Gain/Maintain Attention (Primacy):

Real world experiment, group work, technology

Instructional Procedures

Starter:

What is the median of the data set represented by the box and whisker plot shown below? What is the minimum? The maximum? Quartile 1? Quartile 3?

Segment 1: How can we construct a histogram? When is a histogram suitable for representing data? How can a histogram help us find central tendency? What can we infer from the data?

I usually try to carry a little cash around just in case I will need it. There have been times I needed some cash and didn't have any. Let's call the cash people carry on them, pocket change. Do 8th graders ever need pocket change? How much pocket change do you think 8th graders carry with them?

We are going to construct a histogram showing the amount of pocket change we carry in this class. Read the directions to the Pocket Change worksheet with the class. Draw the numberline on the board and give each student a post-it note. Follow the directions on the worksheet to help students

construct a histogram for the class data.

Save the data from another class so students can compare.

Lesson Segment 2: How would the data look if another type of representation were used?

Have students look on the foldable showing the various ways to represent data they made in April lesson 1. Ask them to study the Histogram and the Box and Whisker plot. Tell them you will be making some statements comparing the similarities of the histogram and the box and whisker plot. Students should use the student response card (attached) to indicate if the statement you are making is True or False. Have students individually hold up and pinch the word to show their response.

Discuss why each statement may be true or false.

Both a histogram and box and whisker plot are useful for displaying large data sets (T)

Both help us see outliers (T)

Both use intervals to show the data (F)

Neither are useful if you need to see individual data elements or values. (T)

Both show minimum, maximum and quartile values. (F)

Both may be more difficult to construct than some other types of graphs. (T)

Have students use the data they have entered in their calculators to construct a box and whisker plot and compare both types of plots. You may want to break the data into pocket change for girls and pocket change for boys to construct two histograms to compare or to construct two box and whisker plots to compare.

Lesson segment 3: Practice

(Idea from Andy McIntyre) CRT's are coming up soon. Often student choose to guess the answers. What score can a student expect to get if they guess on the test? Give students 5 minutes to guess the answers on a multiple choice test such as the 4th quarter Benchmark test. Read the correct answers to the class. Have each student report their number correct, so all students can enter the data into the TI-73. Discuss appropriate intervals for the number correct and work with the class to create a histogram for the number correct. Use the "Guessing On A Test" Histogram worksheet to guide the discussion for this data.

Assessment Plan

Observation, performance task, Data Book Project

Bibliography

This lesson plan was created by Linda Bolin.

Authors

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